

Part of Vol. 2330

No. 10334

United States
Circuit Court of Appeals
For the Ninth Circuit.

SAM SCHNITZER, HARRY J. WOLF, ROSE SCHNITZER
and JENNIE WOLF, individually, and as a co-partnership
doing business under the name and style of Alaska Junk
Company,

Appellants,

vs.

CALIFORNIA CORRUGATED CULVERT COMPANY, a
corporation, and LEO T. CROWLEY, Alien Property
Custodian of the United States,

Appellees.

Transcript of Record
In Two Volumes
VOLUME II
Book of Exhibits
Pages 383 to 445

Upon Appeal from the District Court of the United States
for the District of Oregon

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CLERK

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PLAINTIFFS' EXHIBIT No. 11

[Endorsed]: U. S. District Court, District of
Oregon. Filed Aug. 26, 1942. G. H. Marsh, Clerk.

Feb. 18, 1930.

K. LANNINGER

1,747,942

PIPE LINE

Filed Oct. 8, 1923

Fig. 1.

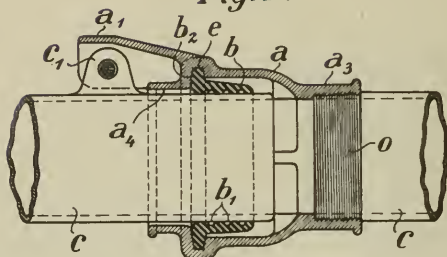


Fig. 2.

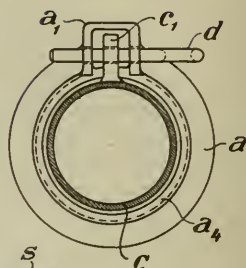


Fig. 3.

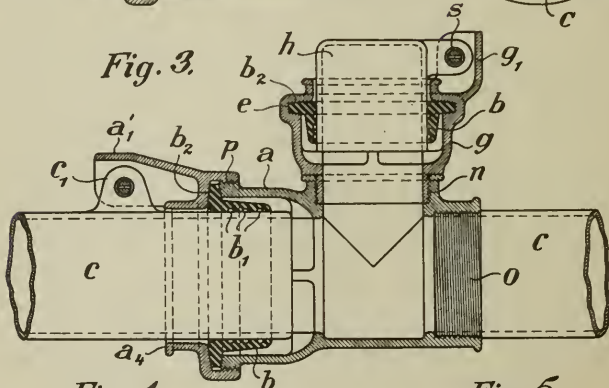


Fig. 4.

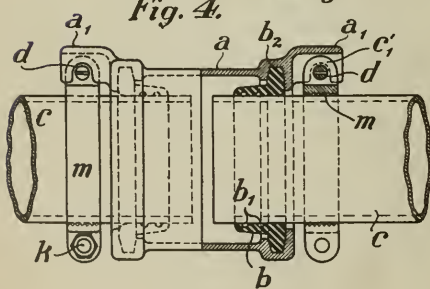
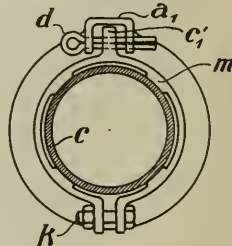


Fig. 5.



Inventor
K. Lanninger
by Langmuir, Parry, Clark & Langmuir
Attys.

UNITED STATES PATENT OFFICE

KARL LANNINGER, OF FRANKFORT-ON-THE-MAIN, GERMANY

PIPE LINE

Application filed October 8, 1923, Serial No. 667,353, and in Germany October 14, 1922.

This invention relates to a line of conduits especially designed for conducting water or steam and in the first mentioned case especially for showering, irrigating and fire extinguishing purposes. The line consists of pipes which are held together by means of sleeve-like coupling casings with rubber packing cups.

The salient feature of the invention consists in that the coupling sleeves are rigid and have cups of elastic material the neck of each cup fitting tightly on the corresponding pipe end, said cups having further each a flange which is clamped in the casing. Only for the reason that they are rigid the coupling casings are capable to withstand the rough handling to which they are submitted, as the pipe lines are thrown about on the fields and in factories. On account of the rigidity of the coupling casing it is however very difficult to ensure the lightness of the joint between the cup and the casing. According to the invention this difficulty is overcome by using the elastic packings through which not only is a tight joint capable of being maintained but a certain degree of flexibility is imparted to the pipe line. The very strong vertical flange on the packing cup permits of a specially simple fixation as it is inserted and clamped in a groove of the coupling sleeve.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming a part of this specification, with the understanding that while on the drawings several embodiments of the invention are disclosed, the invention is not confined to any strict conformity with the showing of the drawings, but may be embodied in any manner which does not make a material departure from the salient features of the invention.

In the drawings:—

Fig. 1 shows the coupling casing in longitudinal section.

Fig. 2 is an end view of the casing shown from the left of Fig. 1.

Fig. 3 shows in longitudinal section the coupling of a branch pipe.

Figs. 4 and 5 show in longitudinal section

and in end view respectively another form of construction of the pipe coupling.

According to Figs. 1 to 3 the coupling sleeve *a* has an internally threaded cylindrical neck *a*³ screwed upon the threaded end of a pipe *c*. The other neck *a*₁ of the coupling sleeve is also cylindrical but smooth so that the end of the other pipe *c* can be inserted through this neck *a*₁ and through the hat shaped rubber packing *b*. The flange *b*₂ of the packing is held in a recess *e*. In order to facilitate the tight fitting of the rubber cup on the pipe wall grooves *b*₁ are arranged in the cylindrical part of the same. The sleeve *a* is connected with this second pipe by means of a hinge. An eye *c*₁ of pipe *c* projects with sufficient play into a lug *a*₁ of the sleeve *a* and is connected with the same by a loosely inserted cotter pin *d*. The easy movement of the hinge *c*₁, *a*₁ and the ample play of the cotter pin in the borings of the hinge further increase the flexibility of the joint of the pipes and the facility of this joint to adapt itself to the irregularities of the ground and the available space.

The couplings could also serve for branch pipes as shown in Fig. 3. In this case the casing or sleeve *a* of the pipe coupling has a branch *g*, *g*₁ and a cap *h* mounted in the branch *g*₁ by means of a hinge *s*. The branch *g* may be either made in one piece with the sleeve *a* or, as shown in Fig. 3, it may be removably connected with the said sleeve *a* by threaded sleeve *n*.

The packing *b* could be adjustably mounted in the casing *a* as shown in Fig. 3. In this case the sleeve and neck are composed of two parts *a*, *a*₁ between the adjacent threaded ends *p* of which the flange *b*₂ of the cup shaped packing is clamped.

Figs. 4 and 5 show that the rough pipe ends may be connected, in which case a split ring *m* is fixed on the pipe *c* with the aid of a screw *k*, said ring having an extension *c*₁ which is hingedly connected with the extension *a*₁ by a cotter pin *d*.

I claim:—

1. A pipe joint comprising in combination with pipes, a rigid coupling sleeve for coupling the pipe ends, said rigid sleeve includ-

ing a separate neck part larger in outward direction than the pipe which it is to encompass, an elastic packing in said sleeve consisting of a cylindrical part tightly fitting around the pipe end which said neck part surrounds, and of a flange, the latter fitting within a groove formed between said sleeve and neck part, said neck part screwing relative to said sleeve for securing said neck part in place and for clamping the flange of the packing between said sleeve and neck part, and a split ring adapted clampably engaging said pipe for securely attaching said pipe swivelly to said neck part.

2. A pipe joint in combination with pipes, one of which has an unthreaded end, a rigid sleeve for coupling the pipes into which sleeve said unthreaded end extends, a cup-shaped packing of elastic material in said coupling sleeve on the side adjacent the unthreaded pipe end, having a free portion extending into said sleeve, and a flange, said flange tightly enclosing said pipe end, said sleeve including means for clamping the flange of said cup-shaped packing in said sleeve, and means for hingedly securing said sleeve to the pipe having the unthreaded end.

3. A pipe joint in connection with pipes one of which has an unthreaded end, a rigid coupling sleeve for coupling said pipes into which said unthreaded end extends, said sleeve having an interior annular groove in the inner surface, a packing of elastic material in said coupling sleeve consisting of a free cylindrical part frictionally enclosing the unthreaded pipe end and having a flange frictionally retained in the groove of said sleeve, and means for hingedly securing said sleeve on the pipe having the unthreaded end.

4. A pipe joint in combination with pipes one of which has an unthreaded end, a rigid coupling sleeve for coupling said pipes, a cup-shaped packing of elastic material in said coupling sleeve and frictionally enclosing the unthreaded pipe end, a flange on said cup-shaped packing clamped in said sleeve, and means for hingedly securing said sleeve on the pipe having the unthreaded end, including a split clamping ring on said pipe, a projection on said sleeve, a projection on said ring, and a cotter pin connecting the projections on said ring and sleeve.

5. A pipe joint in connection with pipes one of which has an unthreaded end, a rigid coupling sleeve for coupling said pipes, said sleeve being formed with a groove in its inner surface, a packing of elastic material in said sleeve, said packing including a cylindrical member frictionally enclosing the unthreaded pipe end, and a flange clamped in the groove of said sleeve, means hingedly securing said sleeve on the pipe having the unthreaded end, said means including a split clamping ring on the said pipe, a projection on said ring, a projection on said sleeve, and

a cotter pin connecting said projection on the ring with said projection on the sleeve.

6. A pipe joint in combination with pipes one of which has an unthreaded end, a rigid coupling sleeve for coupling said pipes, said sleeve consisting of a cylindrical part secured to one pipe end, and a curved neck part enlarged in an outward direction and surrounding the unthreaded pipe end, an elastic packing in said sleeve consisting of a cylindrical part frictionally fitting around the pipe having the unthreaded end which is surrounded by said neck, and of a flange, means for securing the neck to the sleeve in clamping relation to the flange of said packing, and means for hingedly attaching said sleeve to the pipe having the unthreaded end comprising a split clamping ring on said pipe, a projection on said ring, a projection on said sleeve, and a cotter pin for connecting said projections.

In testimony whereof I affix my signature.
KARL LANNINGER.

PLAINTIFFS' EXHIBIT No. 22

[Endorsed]: U. S. District Court, District of
Oregon. Filed Aug. 26, 1942. G. H. Marsh, Clerk.

Jan. 30, 1934.

R. H. PIERCE

1,945,293

PIPE JOINT

Filed Oct. 13, 1931

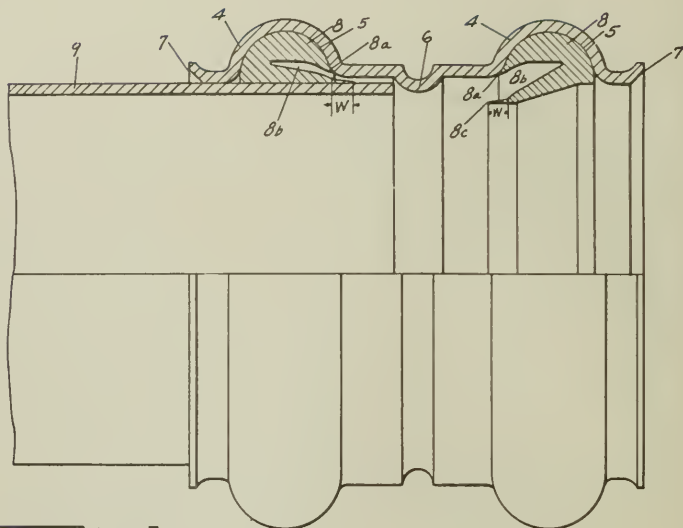


Fig. I

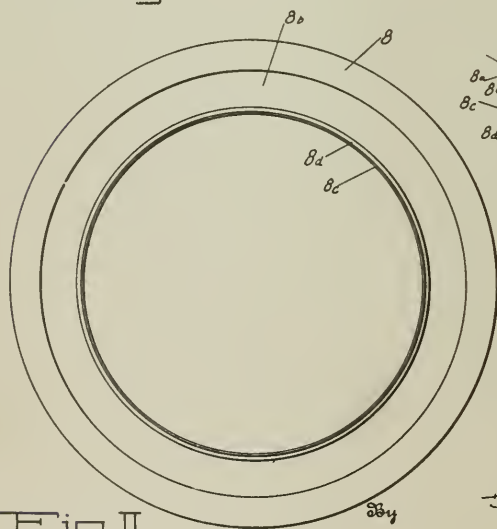


Fig. II

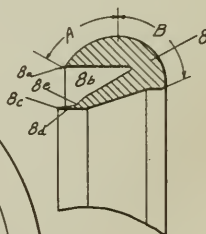


Fig. III

Inventor
RALPH H. PIERCE

J. F. McRae

Attorney

UNITED STATES PATENT OFFICE

1,945,293

PIPE JOINT

Ralph H. Pierce, Eugene, Oreg.

Application October 13, 1931. Serial No. 568,582

1 Claim. (Cl. 285—193)

My invention relates to appliances for joining the ends of unthreaded pipe. They are commonly used as field joints, have some value as expansion joints to take care of the movement due to temperature changes, and are especially useful in connection with the laying of lines of welded steel pipe.

Welded steel pipe is commonly made of metal too thin to allow threading and coupling with threaded couplings. The only other alternative is then a welded field joint, difficult and expensive to execute in a trench, or a coupling having a packing so that it can be applied to the pipe and will result in a fluid tight joint.

The problem here involved is many years old and many attempts have been made to solve it; a very successful coupling so far as tightness is concerned is made on the stuffing box principle having bolts to tighten a rubber ring and compress it around the pipe. It is, however, expensive to build and difficult to properly tighten in a trench.

Before my new invention, so far as I am aware and as I believe, all joints heretofore made by cup-rubbers, to coin a word, that is to say rubbers that depended upon the internal pressure of the contained fluid to make them hug the pipe, have been commercial failures for the reason that if the cup-rubber was made enough smaller than the pipe it was to encircle so that the original grip of the rubber on the pipe would result in a tight joint then it was practically impossible of assembly in the field, and conversely if made so that the pipe could readily be inserted within it in the field, then it would invariably leak until the pressure reached a very considerable amount and began to have its effect toward making the rubber grip the pipe.

These pipe jobs are installed under the supervision of inspectors, and an inspector seeing a wet joint and particularly one throwing a small stream of water will condemn the joint and demand its replacement. Again if any considerable number of joints are used in a pipe line the aggregate leakage will often amount to enough to prevent raising the pressure in the pipe line to a point where the pressure on the internal side of the cup-rubber begins to take effect.

In order to meet the conditions the cup-rubber must be capable of sealing over ordinary unfinished pipe at any pressure from zero up to the test pressure required on the pipe line and higher. As before stated there is no difficulty with high pressure, the low pressure having heretofore been

the point presenting the insurmountable difficulty.

To meet the conditions heretofore enumerated and produce a joint that is well designed as to strength, economical of material, easy to install in the field and permanently tight under all pressures is the purpose of this my present invention.

I accomplish the objects of this invention by the structure illustrated in the accompanying drawing in which a pipe joint made to accommodate the adjacent ends of two pipes but having only one inserted, is shown partly sectioned, in Fig. I.

Fig. II is an end view of Fig. I looking in the direction of the arrow in Fig. I;

Fig. III is a small section of my new type cup-rubber.

A pipe sleeve, 4, having cup-rubber pockets, 5, an internal rib, 6, and external end bells, 7, may be conveniently made by cold rolling a piece of tubing of the type used for making deep draw articles. It may also be cold rolled from a good grade of soft iron and should have a thickness proportioned to the internal pressure that it is expected to carry. On account of the finished shape as shown it will have a much greater rigidity than a piece of plain tubing of equal length and shell thickness. The cup-rubber pocket, 5, will have an internal surface that is an arc of a circle, preferably somewhat less than a half circle. The cup-rubber, 8, is shown in Fig. I to hug the inside of this circular arc closely but it is not molded on that part of its surface to a uniform circular outline. That part of it, shown in Fig. III and designated by the arc, A, is made to a longer radius than that part of it designated by B, the arc B being made to the same radius as the inside of the cup-rubber pocket, 5, will lay in the pocket very smoothly, while that part represented by the arc A requires some compression and therefore the lip, 8a, is bent down as shown in Fig. I and tends to make a preliminarily tight joint at this point while pushing the arc A firmly to its seat.

It has been found expedient to make a cup-rubber in this manner and about of the proportions illustrated in order that the pipe indicated by numeral 9 may be readily inserted and at the same time tighten the cup-rubber into its seat.

The cup-rubber, 8, has a cup, 8b, and as molded the cup will be roughly a triangle though the shape may be varied somewhat without particular disadvantage.

Now comes the outstanding point of my new invention, that which makes it a success when all other similar appearing appliances have proved failures; and this is the feather-edge lip, 8c. This, as the name I have given it indicates, has a feather edge at 8d and may be even thinner, in proportion, at its juncture with 8, shown at 8e, than the scale of the drawing would indicate. It will be well even on the largest cup-rubbers to make it a sixteenth of an inch or less at the point indicated as 8e and it should be actually brought down to a feather edge having no appreciable thickness at 8d. The width of it, so long as it has an appreciable width indicated by W is not so important. It should however be from one-eighth to three-sixteenths of an inch wide, or wider for rough pipes, for best results.

It will be noted also that the feather-edge lip, 8c, has an internal surface arranged to be practically parallel to the axis of the pipe and it will also be noted by comparing the position of 8c in Fig. III with the position of the same structure in Fig. I where it is marked W that both the dependent or internal part of the cup-rubber and the feather-edge lip itself will have taken some initial stretch upon the insertion of the pipe 9 as shown in Fig. I.

In previous structures, heretofore generally referred to, the feather-edge lip is absent. Owing to the fact that it is impracticable, commercially, to lathe finish the ends of pipe for this class of work, they are always rough and as they are almost invariably dipped with some sort of asphaltic compound which does not harden smoothly the surface will always be more or less uneven and that part of the cup-rubber directly indicated by numeral 8 in Fig. III will not conform sufficiently close to the uneven surface to provide a tight joint until the pressure within the cup-rubber or in that space indicated by 8b has reached a very considerable figure.

Rubber, contrary to the general impression, is somewhat difficult to compress even though of the softer grades. When not closely confined it merely displaces upon the application of pressure upon a particular point and actual compression requires pressure in considerable amount. When pressure is applied evenly all over the entire surface, as it will be within the cup-rubber

at 8b, no sensible compression of the rubber takes place without considerable internal pressure in the pipe. This is not true, however, of the feather-edge lip, 8c, being very thin it stretches easily and will closely conform to the rough surface of the pipe and even make a tight joint over the seam ridge commonly left when the pipe is made by autogenous welding. If this feather-edge lip were the total sealing device it would be insufficient, but as made it will take the pressure first at the extreme edge 8d when it is a very small fraction of a pound per square inch and the sealing effect is thought then to progress towards 8c as the pressure increases and it is known that when the pressure increases to large amounts, and they have been tested to 1600 lbs. per sq. in. on a four inch pipe, the pressure sealing effect is then effective through the heavier parts of the cup-rubber indicated generally by the numeral 8 in Fig. III.

The cup-rubber should be made of tough and highly resilient rubber compound in the manner well known to the art of making up rubber articles and the ingredients are not of importance so long as the resilient tough quality is attained and it may be rubber or anything else having the well known qualities of rubber.

Since all pipes are painted it will be well to swab a little fresh paint on the end of the pipe, 9, just before inserting in the joint as it will then enter the cup-rubber 8 very easily, the paint will have no detrimental action against the sealing qualities of the feather-edge lip.

Having thus disclosed my new invention so that anyone familiar with the art to which it appertains should be able to make and use it in the best form known to this inventor, what I claim as new and desire to secure by Letters Patent, is—

In a pipe joint, a sleeve member, an annular internal semi-circular section groove in said sleeve member, a cup-rubber adapted to bear in said groove and having approximate quadrants of said bearing of different radii, said cup-rubber including a dependent feather-edge lip to said cup, being thin and stretchable and adapted to conform closely to a rough surface of an inserted pipe prior to the application of internal fluid pressure.

RALPH H. PIERCE.

DEFENDANTS' EXHIBIT No. 25

[Endorsed]: U. S. District Court, District of
Oregon. Filed Aug. 26, 1942. G. H. Marsh, Clerk.

T. J. MCGOWAN.
Flexible Water-Tight Couplings for Goose-Necks.

No. 222,195.

Patented Dec. 2, 1879.

FIG. 1.

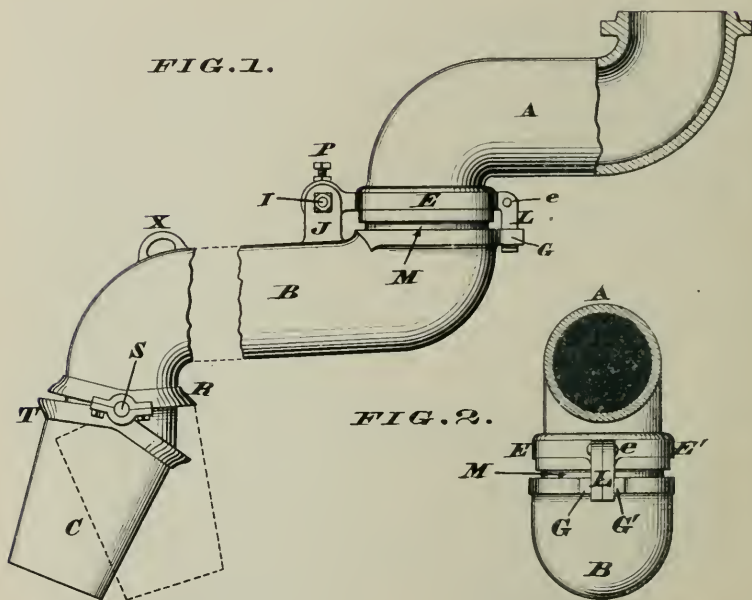


FIG. 2.

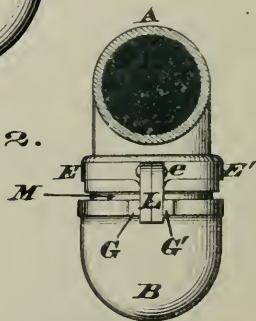
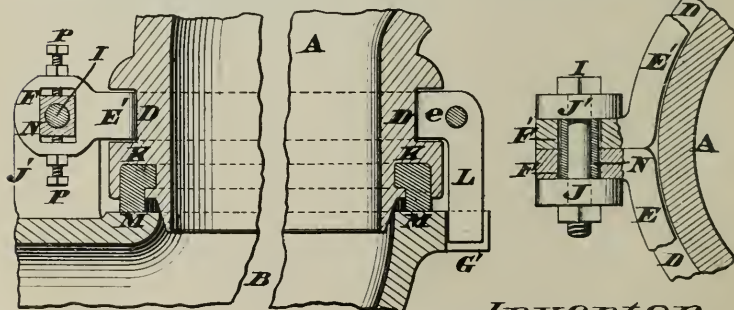


FIG. 3.

FIG. 4.



Attest.
John Kelly
Wm. L. Wright Jr.

Inventor.
Thos. J. McGowan

UNITED STATES PATENT OFFICE.

THEODORE J. MCGOWAN, OF CINCINNATI, OHIO.

IMPROVEMENT IN FLEXIBLE WATER-TIGHT COUPLINGS FOR GOOSE-NECKS.

Specification forming part of Letters Patent No. 222,195, dated December 2, 1879; application filed October 13, 1879.

To all whom it may concern:

Be it known that I, THEODORE J. MCGOWAN, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Water-Tight Flexible Couplings for Goose-Necks; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

The invention relates to an improved flexible water-tight joint or coupling for the spout or goose-neck of railway water-tanks, whereby it is prevented from leaking, and which permits at the same time free lateral motion of the outer end of the goose-neck, both to the right and left and forward and back, to enable the spout to be readily conducted to the well-hole of the tender, even if it should not be exactly in line with the tank-pipe.

Figure 1 is a side elevation of the spout or goose-neck, partly in section, and a portion of the pipe being broken away. Fig. 2 is a vertical section of the same. Fig. 3 is a vertical section of the water-tight joint and hinge and swivel. Fig. 4 is a horizontal section of the adjustable hinge.

The upper or stationary pipe, A, is connected at its upper end with a water-tank by any of the usual modes. Around its lower end is provided an annular groove, D, to receive the ring-clamps E E'. The parts of this clamp are firmly riveted at e, and move easily around the pipe in the groove D. They also project in front of the pipe A a suitable distance forward, and are provided with slots F F', to receive the box N, through which passes the pivot I. These projections of the parts of the clamp E E' fit between the ears J J, extending upward from the spout B, and the pivot I passing through these ears and the box N, a hinge is thus formed, on which the spout B may be swung up into a perpendicular position, by a chain or rope attached to the staple X.

The ring-clamp E E', moving easily in the groove D, the spout B may be swung around laterally to any desired extent, in order to accommodate itself to the position of the well-hole of the tender. This object has always been attained by means of complicated and

cumbersome machinery liable to get out of order.

My invention secures this by a simple, cheap, and compact device, strong and durable.

When the spout B was full of water, or when the ends of the two spouts became frozen together, the spout B would swing with some difficulty and the lugs J J might be wrenched off. To provide against this the rear ends of the parts of the clamp E E' extend downward, forming the lugs L L, which fit between the ears G G, formed on the rim of the spout B, by which a connection between the pipes A and B is made at the rear side, as well as the front, thus providing a firm double bearing in swinging the pipe B in a lateral direction and preventing any strain or wrenching of the ears J J.

To make the joint water-tight the spout or pipe A, at its lower end, is provided with an annular groove, K, undercut, into which is sprung a gasket or cushion, M, preferably of india-rubber, which, being thicker at the top than at the bottom, or soon becoming so by pressure, is securely fastened in the groove without the use of bolts or rings. Below this groove the lips of the spout A are flanged inwardly to fit into the mouth of the spout B.

The lips of the spout B are made perfectly flat and plain, and fit snugly against the gasket M. The joint is thus made water-tight, and the smooth flat lips of the spout B bearing against the cushion M, there is no danger of binding at the joint, and the spout B will swing easily and readily, thus avoiding a serious difficulty with the joints heretofore in use.

In order to be able to adjust the joint accurately, the slot F F' is made sufficiently large to permit the box N to move freely up and down, carrying with it, of course, the pivot I. The box is adjusted and held in place by the lock-nuts or screws P P. Should the spout B not fit snugly against the gasket M, or should the gasket become worn on one side, by raising or lowering the box N in the slot F F', the lips of the spout B may be adjusted to fit against the gasket perfectly on all sides.

In order to give still more flexibility and extension to the goose-neck, the spout B is provided with a pivoted or swinging nozzle, C.

This is done by securing on the spout B, near its lower end, an annular flange, R, sloping upwardly at rear and front, and a corresponding flange, T, sloping downwardly, secured to the nozzle C. The upper flange on the spout B is provided with journal-boxes to receive the journals S on the lower flange, on which the nozzle C swings forward and back. The motion is limited by the lips of the flanges coming in contact either in front or in the rear. The usual mode of arranging them is to make the rear half of the upper flange horizontal, so that the nozzle will hang straight down when the tender is in exact line with the goose-neck, and swing outward when it is out of line. This nozzle may also be used on a stand-pipe.

For convenience the lugs L L and the forward projection of the parts of the clamp E E', containing the slots F F', are formed from the ends of the two parts of the clamp E E'. They may also be made solid of a single piece of metal.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the ring-clamp E E', the slots F F', ears J J, lugs L L, and ears G G, as and for the purpose described.

2. The combination of the clamp E E', ears J J, and adjustable box N, as and for the purpose described.

3. In combination with a joint for goose-necks, the adjustable box N, as and for the purpose described.

4. The nozzle C, hinged to the lower end of the spout B by pivots S at the sides, as and for the purpose described.

5. The sloping flange R on the nozzle C, in combination with the corresponding flange T, as and for the purpose described.

THEO. J. MCGOWAN.

Witnesses:

JOHN KELLY,
WM. L. WRIGHT, Jr.

DEFENDANTS' EXHIBIT No. 27

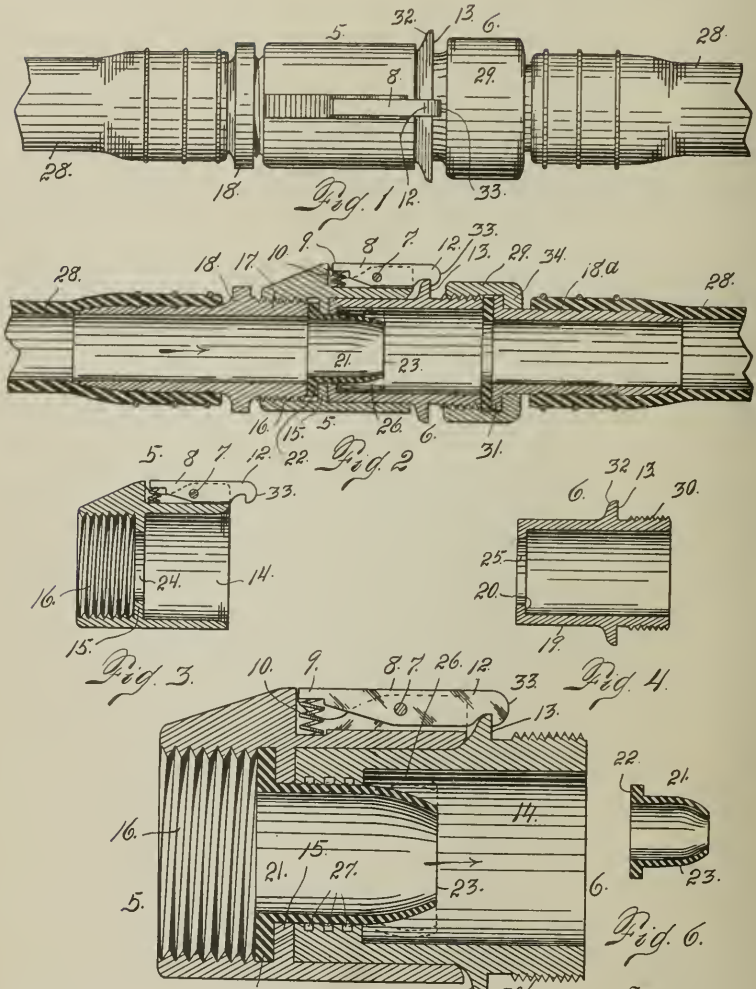
[Endorsed: U. S. District Court, District of
Oregon. Filed Aug. 26, 1942. G. H. Marsh, Clerk.

T. N. JONES.
HOSE COUPLING.

APPLICATION FILED NOV. 10, 1910.

999,169.

Patented July 25, 1911.



Witnesses

Otto E. Haddock.
C. H. Rossoner.

Fig. 5.

Inventor

T. N. Jones.
By J. O. Brown.
Attorney

UNITED STATES PATENT OFFICE.

THEODORE N. JONES, OF BOULDER, COLORADO.

HOSE-COUPLING.

999,169.

Specification of Letters Patent. Patented July 25, 1911.

Application filed November 10, 1910. Serial No. 591,684.

To all whom it may concern:

Be it known that I, THEODORE N. JONES, a citizen of the United States, residing at Boulder, county of Boulder, and State of Colorado, have invented certain new and useful Improvements in Hose-Couplings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in hose couplings, my object being to provide a device of this character adapted for use on garden, fire or other hose, which shall be simple in construction and whereby the hose sections when equipped therewith shall be adapted to be easily connected and disconnected, the coupling at the same time forming a fluid-tight joint.

An important feature of my improved construction consists in a gasket interposed between the female member of the coupling and the screw sleeve connected with the hose section, the said gasket being composed of rubber or other suitable or similar material, and having a flexible part protruding into the male member of the coupling and passing the engaging shoulders of the two coupling members, the said flexible part extending beyond the said joint and into the opening of the male member, this extension constituting a floating portion of the gasket capable of expansion due to the passage of water therethrough, the expansion of the free or floating part of the gasket insuring a fluid-tight seal at the only point where the water could possibly escape from the coupling.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing: Figure 1 is an elevation illustrating two sections of hose connected by my improved coupling. Fig. 2 is a central longitudinal section of the same. Fig. 3 is a sectional view of the female member of the coupling. Fig. 4 is a similar view of the male member of the coupling. Fig. 5 is a sectional view in detail of the coupling

proper showing a slightly modified form of construction, the two members being in the assembled relation. Fig. 6 is a sectional view in detail of the gasket.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the female member and 6 the male member of the coupling. Upon the female member is pivotally mounted as shown at 7, a locking dog 8 whose extremity 9 is acted on by a coil spring 10, which has a tendency to throw the hook end 12 of the dog inwardly. This hook end protrudes beyond the coupling member and is adapted to interlock with a circumferential shoulder 13 formed on the male member.

The female member of the coupling is provided with a socket 14 at the inner extremity of which is located a shoulder 15 formed by an interiorly projecting, relatively thin circumferential part. Beyond this shoulder is a threaded socket 16 adapted to receive the protruding threaded extremity 17 of a coupling sleeve 18 connected with the hose in the usual or any suitable manner.

The male member of the coupling is provided with a plain portion 19 having an interior shoulder 20 at its inner extremity. The inner extremity of this member being seated against the shoulder 15 of the female member when the parts are assembled (see Figs. 2 and 5).

The joint formed by the inner extremity of the male member and the shoulder 15 of the female member is protected or made fluid-tight by means of a gasket 21 having a base flange 22 engaging the shoulder 15 of the female member on the opposite side from the inner extremity of the male member. From the inner edge of the base flange of this gasket a flexible part 23 protrudes, the same being fitted into the openings 24 and 25 of the female and male members, passing beyond the joint formed by the two last named members and protruding some distance beyond the same into the male member opening. Where the gasket protrudes beyond the joint formed by the parts 15 and 20 of the male and female members, it constitutes a sort of floating or free part, since normally there is a space 26 between this floating part and the inner surface of the male member, thus giving the floating part

an opportunity to expand due to the pressure of the water passing through the coupling in the direction of the arrow (see Figs. 2 and 5). This expansion of the floating part of the gasket effectually seals the joint formed by the parts 15 and 20 of the female and male members. It will be understood that the floating part of the gasket protrudes from the base flange of the latter in the direction of the water flow through the coupling. This is necessary in order that the gasket may properly perform its function.

In the form of construction illustrated in Fig. 5, the inwardly protruding flange or part 20 of the male member is made relatively thick and is provided on its inner surface with a number of circumferential grooves 27, which are engaged by the flexible protruding portion of the gasket 21 when the parts are assembled. The object of these grooves is to give further security to the seal obtained through the instrumentality of the gasket, since the pressure of the water when passing through the coupling will have a tendency to cause the gasket to swell outwardly into the said grooves, thus further insuring the sealing of the joint against the possibility of the passage of water between the gasket and the parts of the two members forming the said joint. Attention is called to the fact that when the coupling members are connected with the sleeves 18 and 18^A of the hose coupling sections 28, the threaded part 17 of the sleeve 18 engages the base flange of the gasket; while the sleeve 18^A is connected with the male member of the coupling by a screw sleeve 29 engaging an exteriorly threaded part 30 of the adjacent male coupling member, the coupling sleeve having an interiorly protruding part 34 forming a shoulder which engages a shoulder 31 formed on the sleeve 18^A. If we assume that the coupling members are assembled or connected in the coupling relation, in order to disconnect them it is only necessary to press inwardly on the spring-actuated extremity 9 of the locking dog 8. This will disconnect the hooked end 12 of the dog from the shoulder 13 of the male member. The two parts may then be disassociated by an endwise movement or a movement parallel with the axis of the coupling. In order to connect the two members in the coupled relation it is only necessary to press the part 19 of the member 6 into the socket 14 of the member 5 until the hooked extremity 12 of the dog engages the locking face of the shoulder 13 of the male member. The opposite face of this shoulder is curved or beveled as shown at 32, whereby the rounded surface 33 of the hooked extremity of the dog is automatically forced outwardly as the two parts come together, until the straight or locking face of the shoulder 13

is in position to allow the hooked end of the dog to spring into engagement therewith.

Having thus described my invention, what I claim is:

1. A hose coupling composed of male and female members, one member being interiorly reduced in size at its abutting extremity, and the other member being provided with a gasket having a portion protruding into the one member beyond the reduced portion, the portion of the gasket protruding beyond the reduced portion being normally free from contact with the wall of the last named member and adapted to expand toward the said wall over the reduced portion, to form a fluid tight joint, substantially as described.

2. A hose coupling composed of interlocking male and female members, one member being provided with a gasket having a portion protruding into the other member, the latter having an interiorly projecting shoulder through which the said gasket passes, and protrudes beyond the same into a floating portion, whereby the gasket is normally separated from the wall of the male member beyond the shoulder, allowing it to expand outwardly toward the said wall over the shoulder, under the pressure of the passing water, and forming a fluid tight joint with the said shoulder which coöperates therewith, for the purpose, substantially as described.

3. A hose coupling composed of male and female members, the female member having an inwardly protruding circumferential part forming a stop engaged by the inner extremity of the male member, the latter being also provided with an inwardly protruding shoulder, and a gasket having a base flange engaging the shoulder of the female member on the opposite side from that which is engaged by the male member, the said gasket having a part protruding in the direction of the flow of the water passing the joint and the shoulders formed on the two members and having a floating part extending beyond the said shoulders, the gasket being flexible and the floating part being adapted to be automatically expanded over the shoulder of the male member by the pressure of the water passing therethrough, substantially as described.

4. A hose coupling composed of interlocking male and female members, the two members having interiorly protruding engaging shoulders, one of the members having a gasket provided with a base flange engaging one of said shoulders on the opposite side from that engaged by the shoulder of the other member, the gasket having a flexible part protruding in the direction of the flow of water past the joint formed by the two shoulders, and having a floating part extending beyond the said shoulders, the float-

ing part of the gasket tapering inwardly
and adapted to expand due to the pressure
of the water passing therethrough, the inte-
riorly protruding shoulder of the male mem-
5 ber having circumferential grooves sur-
rounding the protruding part of the gasket
substantially as described.

In testimony whereof I affix my signature
in presence of two witnesses.

THEODORE N. JONES.

Witnesses:

HORTENSE UHLRICH,
F. E. BOWEN.

DEFENDANTS' EXHIBIT No. 29

[Endorsed]: U. S. District Court, District of
Oregon. Filed Aug. 26, 1942. G. H. Marsh, Clerk.

No. 685,818.

Patented Nov. 5, 1901.

R. M. CLOSE.
PIPE COUPLING

(Application filed Nov. 28, 1900.)

(No Model.)

Fig. 1

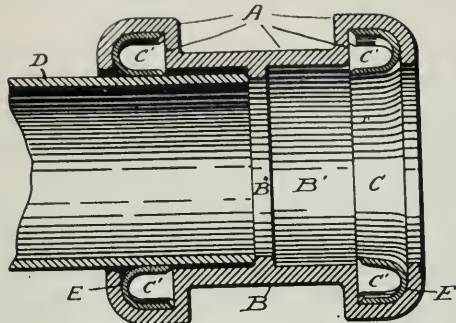
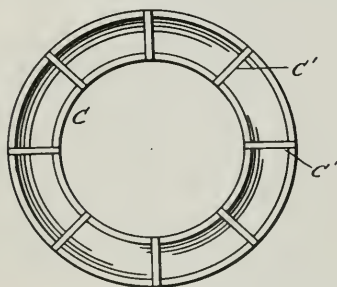


Fig. 2



Witnesses
Harry A. Brooks
Mattie McGinnis

Inventor
Rufus M. Close
By
Hazard & Harpham
Attorneys

UNITED STATES PATENT OFFICE.

RUFUS M. CLOSE, OF LOS ANGELES, CALIFORNIA.

PIPE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 685,818, dated November 5, 1901.

Application filed November 28, 1900. Serial No. 38,054. (No model.)

To all whom it may concern:

Be it known that I, RUFUS M. CLOSE, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in Pipe-Couplings, of which the following is a specification.

My invention consists in a packing-ring and sleeve for use in coupling pipe; and the object thereof is to provide a simple coupling by which two sections of pipe can be quickly coupled together and at the same time render the joint therebetween liquid or gas tight. I accomplish this object by the coupling-joint described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal central section of my pipe-coupling and a piece of pipe in one end thereof. Fig. 2 is a view of my packing-ring.

Heretofore in laying pipe-lines in which gases or liquids are conveyed under pressure the different sections thereof have usually been joined together by screw-threaded joints or by packed and soldered joints. In the case of packed and soldered joints, which is the usual way of laying gas and water mains in cities, much time is required in soldering the joints, and in order to remove any section thereof it is usually necessary to break the pipe. With my improved pipe-coupling there is no loss of time in making the joints tight and the sections of the line can be taken apart easily without detriment thereto or to the coupling-joint.

In the drawings, A represents the coupling-joint by means of which the ends of two sections of pipe are united together. It is composed of the coupling-sleeve B and the packing-ring C. The coupling-sleeve B is provided at each end with sockets B' for the reception of the ends of the pipe D. This sleeve has an internal central rib B'', against which the ends of the pipe abut when in place in the sleeve. Each end of the sleeve is provided with an annular recess E of suitable shape to receive the packing-ring. The packing-ring is made of a yielding material and of a shape to fit into the recess in the end of

the sleeve, with the edges thereof adapted to tightly contact one edge with the extreme outer edge of the recess and the other edge with the pipe when placed in the socket and having an opening between the sides. In order that the ring shall fit very tight, I have provided cross-ribs C' to hold the edges of the base expanded.

When sections of pipe are to be coupled together, a packing-ring is placed in each of the recesses in the ends of the sleeve. It will be observed that the inner edge of the base of the packing-ring projects slightly into the space to be occupied by the pipe, and when the end of the pipe is pushed into the socket, as shown in Fig. 1, that the packing-ring is expanded and contacts with it almost one-half its length, and that there is a U-shaped annular space between the inner sides of the packing-ring. When pressure is applied to the material passing through the pipe, a portion thereof is forced into the annular space within the packing-ring and causes the same to more tightly contact with the sleeve and the pipe.

I have illustrated in the drawings the shape of the recess and packing-ring that I have found in practice to effect good results, the recess in cross-section being the one-half of a U and the packing-ring in cross-section a full U with expanded top. It is obvious, however, that the recess and packing-ring may be of other shape, the essential features of my invention being a sleeve having a socket at each end for the reception of the ends of the pipe and having an internal annular recess for the reception of a packing-ring, which ring is substantially U-shaped in cross-section, with reinforcing edge expanding cross-ribs, adapted to form a tight joint between the sleeve and the pipe and in which the greater the pressure the tighter the packing-ring is forced against the sleeve and pipe.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A pipe-coupling, comprising a sleeve having a central internally-projecting rib and sockets in each end thereof, and an internal

annular recess in each socket; and a yielding packing-ring U-shaped in cross-section and having reinforcing expanding cross-ribs in said recess adapted to make a tight contact between the pipe in the socket and the sleeve.

5 2. In a pipe-coupling for connecting lengths of pipe, a circular packing-ring for insertion in an annular recess in the ends of the coupling, the said packing-ring being of pliable

material; U-shaped in cross-section being reinforced by cross-ribs C'.

In witness that I claim the foregoing I have hereunto subscribed my name this 22d day of November, 1900.

RUFUS M. CLOSE.

Witnesses:

G. E. HARPHAM,
MATTIE MCGINNIS.

DEFENDANTS' EXHIBIT No. 32

[Endorsed]: U. S. District Court, District of
Oregon. Filed Aug. 26, 1942. G. H. Marsh, Clerk.

(No Model.)

2 Sheets—Sheet 1

H. H. GORTER.
MOVABLE JOINT FOR WATER PIPES.

No. 580,084.

Patented Apr. 6, 1897.

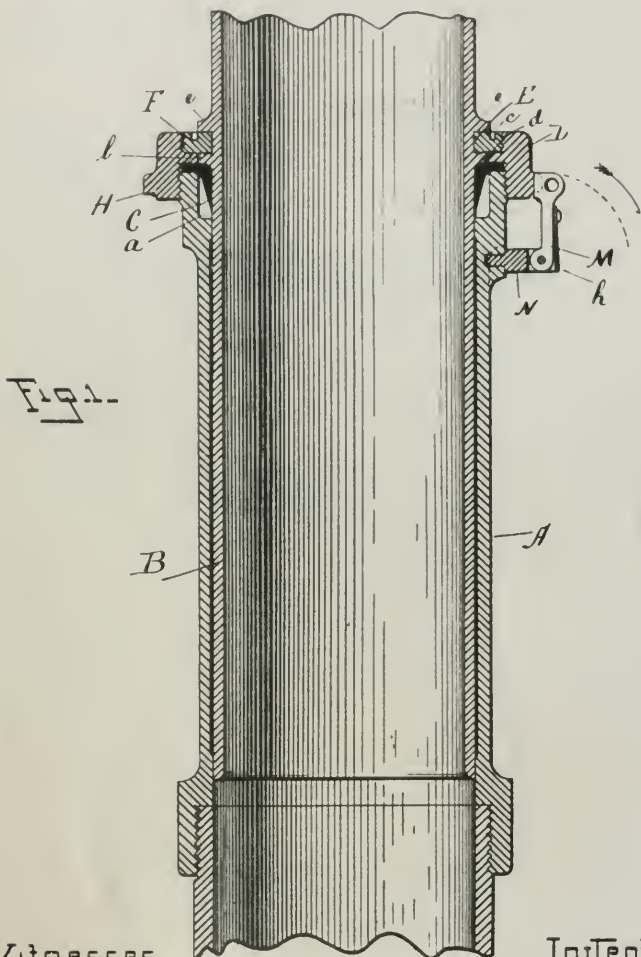


Fig. 1.

Witnesses

John D. Whaley
J. H. Carnes.

Inventor

Henry H. Gorter
by A. S. Poiré
Attorney

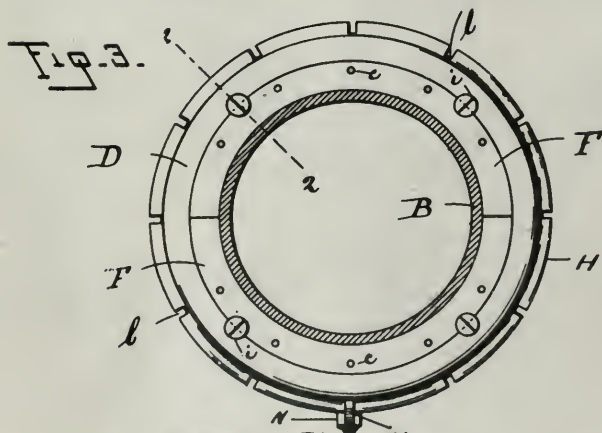
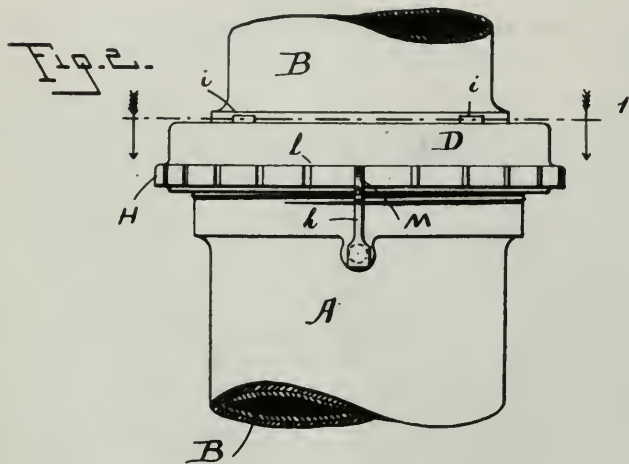
(No Model.)

2 Sheets—Sheet 2.

H. H. GORTER.
MOVABLE JOINT FOR WATER PIPES.

No. 580,084.

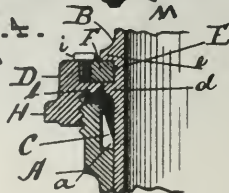
Patented Apr. 6, 1897.



Witnesses

John D. Whaley
J. D. Haines

Fig. 4.



Inventor

Henry H. Gorter
per A. S. Pare
Attorney

UNITED STATES PATENT OFFICE.

HENRY H. GORTER, OF SAN FRANCISCO, CALIFORNIA.

MOVABLE JOINT FOR WATER-PIPES.

SPECIFICATION forming part of Letters Patent No. 580,084, dated April 6, 1897.

Application filed April 9, 1896. Serial No. 586,875. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. GORTER, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Movable Joints for Water-Pipes; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention relates to improvements in that class of joints commonly called "swivel-joints," in which the outer and inner shells telescope together, and used particularly for fire or hydraulic mining apparatus where a swivel movement is required; and it consists in the novel construction and arrangement of the packing and retaining portion of the joint, whereby the swivel-section is safely secured to the stationary section and made water-tight.

Referring to the accompanying drawings, which form part of the following description, Figure 1 is a sectional view of my improved swivel-joint. Fig. 2 is a side elevation showing a portion of Fig. 1. Fig. 3 is a cross-section of Fig. 2, taken from dotted line 1 to 1, looking in the direction of the arrows; and Fig. 4 is a broken section of Fig. 3, taken from dotted line 2 to 2.

Similar letters refer to similar parts throughout the drawings.

Let A represent the stationary section of the joint, to which the main hose or pipe is connected. Bis the swivel-section telescoped and adjusted within the stationary section, to which the discharge-pipe is connected, or vice versa. In the space *a* between these two sections I insert the packing C, preferably made of leather and cut angularly, leaving a space between the stationary section and the packing, so that the water passing between the two sections forces the packing laterally against the swivel-section and causes it to make a still tighter joint. The other end of the packing is bent rectangularly and rests upon the edge of the stationary section. A nut D, provided with an internal shoulder *b*, is then screwed to the stationary section until the shoulder compresses the rectangular part of

the packing against the edge of the stationary section, thus making a double water-tight joint. Upon the swivel-section and placed in an annular groove E is a ring F, having its outer side threaded to engage with the threads of the nut D for the purpose of keeping the swivel-section in position. This ring is made in two parts, as shown in Fig. 3, and provided with keyholes *c*, as shown in Figs. 1 and 3, to facilitate its adjustment. The sides of the groove project outwardly, as at *d e*, to form suitable bearing for the ring. Thus constructed and when in position the underneath edge of the ring bears tightly against the internal shoulder *b* of the nut, while the projecting sides *d e* of the groove prevent the swivel-section from moving up or down without interfering with its rotary movement.

To prevent the unscrewing of the ring while in position, I insert between its threaded edge and the nut a stopper consisting, preferably, of one or more screws *i*, as particularly shown in Figs. 3 and 4.

The nut D may be provided also with a stopper, if desired. For that purpose I have shown the nut with flange H and notches *l* upon it to receive the key or pawl M. The pawl is pivoted to post N, secured to the stationary section, and provided with a spring *h*, working against the post, for the purpose of keeping the pawl in position when once set in the notches or released.

Thus believing I have produced valuable improvements in this class of joints and having described the same, what I do claim as my invention, and desire to secure by United States Letters Patent, is—

1. In a swivel-joint, the combination of the stationary section provided with means for attachment to a main at one end and with an internal annular groove at the other end, a swivel-section projecting within said stationary section, a shoulder on said swivel-section, a ring adjacent said shoulders having an external screw-thread, a nut having a screw-thread adapted to said screw-thread on the ring, a second screw-thread on the nut adapted to a screw-thread on the stationary section, and a flange between said threads, and a packing ring lying in said annular groove and provided with a portion adapted to be held in

place between the end of the stationary section and the flange on the nut, substantially as described.

2. In a swivel-joint, the combination of a stationary section provided at one end with means for attachment to a main, and at the other end with an annular groove, a swivel-section projecting into said stationary section, flanges on said swivel-section, a ring between said flanges formed in sections and provided with an external screw-thread, a nut provided with screw-threads for connection with said stationary section and said ring, a

flange on the nut registering with one of the flanges on the swivel-section and forming with the stationary and swivel sections an annular space *a*, and a packing-ring in said space held between said flange and the stationary section, substantially as described. 15

In testimony whereof I have hereunto signed my name in the presence of two witnesses. 20

HENRY H. GORTER.

Witnesses:

CHAS. J. ARMBRUSTER,
JOHN D. WHALEY.

DEFENDANTS' EXHIBIT No. 36

[Endorsed]: U. S. District Court, District of
Oregon. Filed Aug. 26, 1942. G. H. Marsh, Clerk.

E. F. BERRY.
FLEXIBLE PIPE COUPLING OR FLEXIBLE PIPE.
APPLICATION FILED JAN. 31, 1917.

1,255,577.

Patented Feb. 5, 1918.

2 SHEETS-SHEET 1.

Fig. 1.

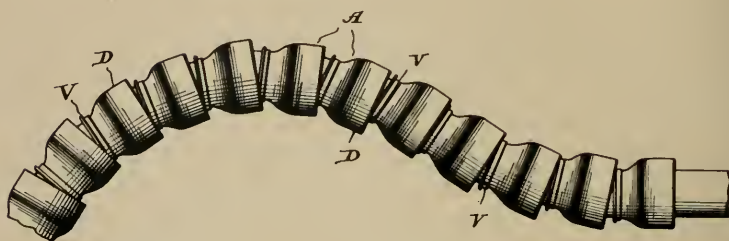
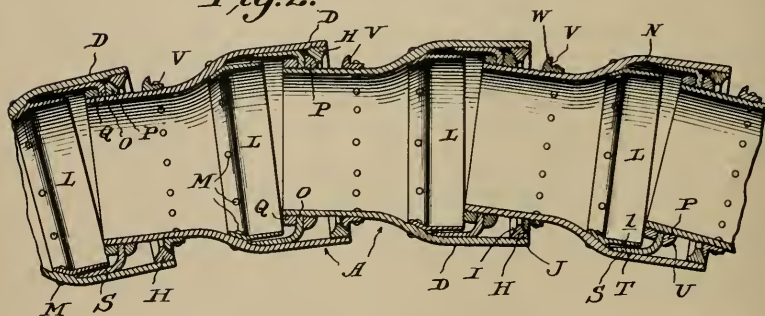


Fig. 2.



Inventor

Edward F. Berry,

By *T. W. Means*
Attorney

E. F. BERRY.
FLEXIBLE PIPE COUPLING OR FLEXIBLE PIPE.
APPLICATION FILED JAN. 31, 1917.

1,255,577.

Patented Feb. 5, 1918.
2 SHEETS—SHEET 2.

Fig. 3.

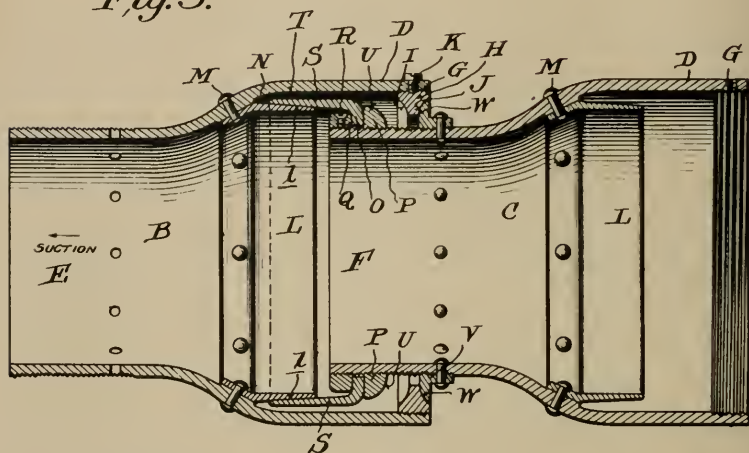
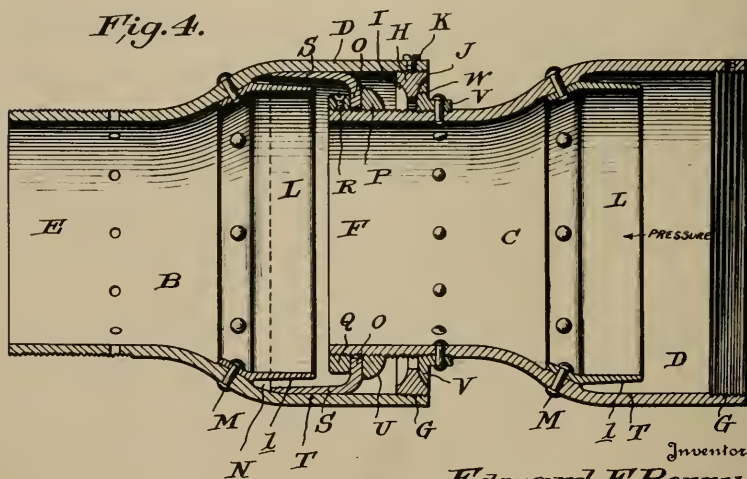


Fig. 4.



Edward F. Berry, Inventor

By *Macmillan*
Attorney

UNITED STATES PATENT OFFICE.

EDWARD FRANCIS BERRY, OF NEW ORLEANS, LOUISIANA.

FLEXIBLE PIPE-COUPLING OR FLEXIBLE PIPE.

1,255,577.

Specification of Letters Patent.

Patented Feb. 5, 1918.

Application filed January 31, 1917. Serial No. 145,659.

To all whom it may concern:

Be it known that I, EDWARD F. BERRY, citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Flexible Pipe-Couplings or Flexible Pipes, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in flexible pipe couplings adapted for use either in connecting relatively long sections of pipe or for use in closely related series to provide a relatively flexible pipe, as will be apparent to persons skilled in the art from the more specific disclosure of the invention hereinafter contained.

A primary object of the invention is to provide a coupling permitting within the limits of the device relative longitudinal movement or play and relative lateral deflection of the adjoining members of the coupling, and parts immediately associated therewith, while preferably maintaining a sealed relation of the coupling members.

The preferred embodiment of the invention embraces coupling members associated with flexible sealing instrumentalities, permitting a movable association of the coupling members, but adapted in one position to seal the joint when the flow through the pipe or coupling is under pressure behind the same, and in another position to correspondingly seal the joint when the flow is induced by suction in advance of the same.

Heretofore in flexible joints of the general character here suggested, a flexible sealing flap or ring has been used between the co-acting metal or equivalent members of the coupling, the sealing action being effected by the pressure of the liquid passing through the pipe or coupling against the flexible packing resulting in the expanding or thrusting of the packing against the coupling member freely related thereto. However, in such a device, where the flow is induced by suction there is a tendency to compress or draw the flexible packing away from said relatively free member of the coupling and thereby open or expose the space between the coupling members and offering opportunity for leakage or impaired service. It is to improve this condition that the present invention has been devised.

The above stated preferred embodiment of the invention more specifically, comprises the coöperating coupling members inter-fitted for a relative longitudinal movement or play, means for limiting such movement in both directions while at the same time permitting a rocking or lateral deflection thereof, in combination with a sealing device carried by one of the coupling members having a free flexible flap, conveniently of cylindrical formation adapted to be interposed between oppositely disposed contact surfaces on the other coupling member so that under the action of pressure and suction the flexible flap will expand or contract, as the case may be, to create a sealing engagement with one or the other of said contact surfaces.

All of the foregoing will be clear from the specific description hereinafter submitted when read in connection with the accompanying drawings forming part hereof, wherein the preferred embodiment of the invention is illustrated.

In the drawings—

Figure 1 is an elevation of a flexible pipe composed of a number of associated flexible coupling units enabling the flexing of the pipe to almost any degree or shape to meet all ordinary conditions confronting its service, while always maintaining a sealed condition.

Fig. 2 is a longitudinal sectional view through a part of Fig. 1.

Fig. 3 is an enlarged longitudinal sectional view showing the action of the flexible sealing member under suction; and,

Fig. 4 is a similar view showing the action of the same member under pressure.

Referring more specifically to the drawings wherein like reference letters refer to corresponding parts in the several views, A represents the series of couplings immediately associated to form the flexible pipe, although it will be instantly appreciated that the flexible joint *per se* may be utilized in connecting relatively long or relatively rigid pipe sections together. Inasmuch as these pipe couplings are the same in construction throughout, it will suffice to only describe one of them specifically herein, and with this in mind B and C represent the adjoining members of a flexible pipe coupling, the former being enlarged as represented at D by flaring the metal outwardly from the

reduced end E, the diameter of which latter is the normal diameter of the piping, the same as the size of the inner end F of the member C that is adapted to project into the enlarged end D. As will be readily understood, the end D of the coupling member B may be connected to an ordinary pipe extension or may directly extend into the enlarged end portion D of an adjacent coupling, and similarly the end F of the coupling member C may be connected to an ordinary length of piping or may be in turn merged into an enlarged end portion D to constitute the cooperating member of another flexible joint, all in keeping with the purposes for which the device at hand is to be used.

At the end of the enlarged portion D of the coupling member B, I provide a threaded interior, represented at G adapted to receive an externally threaded stop-ring and bearing H having dished or concaved opposite faces I and J. When in place the ring is prevented from changing its position or becoming separated from the coupling member which carries the same by a locking screw K passing through the enlarged end portion D into impingement with the stop and bearing ring H.

At a point approximately the inner end of the enlarged portion D, and intermediate of the same and the reducing end portion E, I fasten a relatively rigid ring L through the medium of rivets or equivalent devices M passing through one edge portion of the ring and the member B, this ring L being desirably of metal the same as all of the parts of the device save the packing to be presently discussed, and separated from the enlarged end portion D to provide an intervening space N.

O is a packing member, to which I have alluded, the same comprising a heavy disk of rubber fabric, reinforced if desired, sleeved upon the end F of the coupling member C and between clamping rings P and Q threaded upon the complementary threaded exterior of the end portion F, the ring Q being in turn locked against escape by a locking screw R passing therethrough into impinging relation with said end portion F.

The edge of the packing disk O merges into an offset reduced flexible cylindrical portion or flap S adapted to give outwardly or inwardly in keeping with the influence exerted thereon by the action of the flow within the piping, and with reference to the inner contact surface T of the enlarged portion D and the outer contact surface ℓ of the ring L.

The clamping ring P has a rounded or convex surface U adapted to engage the bearing surface I of the ring H in the outermost limit of movement of the coupling member C in the coupling member B to per-

mit a rocking play or deflection of the coupling members to permit the members to assume angular relation as will be obvious.

To limit the inward movement of the coupling member C with reference to the coupling member B, while permitting lateral rocking or deflection of the coupling members, I provide a stop-ring V threaded or riveted upon and secured in desired position to the member C at a point beyond the end of the enlarged portion D of the coupling member B, this stop-ring V in turn being provided with a rounded or convex surface W to contact and act with the bearing J of the stop-ring H similarly to the action of the surfaces U and I just described.

From the foregoing description it will be seen that the two coupling members B and C have a free longitudinal or telescopic movement within the limits defined by the adjustment of the various parts, while at the same time the members are always free to assume an angular relation with respect to each other; and irrespective of the position of the coupling members there will always be a sealed relation therebetween by means of the flexible sealing or packing ring or member S, it being apparent that when the flow through the piping is in the direction of the arrow with pressure behind the liquid, the internal pressure will cause the annular flap or tongue S to expand into an extensive surface engagement with the contact surface T of the enlarged portion D of the coupling member B, and on the other hand, when the flow is induced by suction in advance of the liquid, the member S is drawn into surface engagement with the contact surface ℓ of the ring L and thereby correspondingly seals the space between the coupling members.

While I have herein disclosed one special embodiment of the invention, it will be appreciated that the invention is capable of embodiment in other forms and devices without departing from the spirit thereof and as may be in keeping with the scope of the hereto appended claims.

Having thus described the invention, what I claim is:

1. A flexible coupling of the character described comprising sealed interfitting members having cooperating bearing surfaces to constitute a ball joint, and said members being formed to permit telescopic movement of said members without breaking the sealed relation thereof, substantially as described.

2. A flexible coupling of the character described comprising two interfitting telescopic members each having oppositely disposed bearing surfaces adapted to constitute ball joints when the members are telescoped or extended, respectively, to their relative limits of movement.

3. A flexible coupling of the character described comprising interfitting members

having cooperating bearing surfaces to constitute a ball joint, and said members being formed to permit telescopic movement of said members in combination with a packing member for sealing the space between the coupling members irrespective of the position of said members telescopically or on the ball joint.

4. A flexible coupling of the character described comprising interfitting members, a flexible packing carried by the inner member having an extensive free portion adapted to contact with the outer member to create a sealing engagement while permitting longitudinal and lateral movements of the members, and a stop on the inner member adapted to engage a cooperating stop on the outer member to limit the inward movement of the inner member with reference to the outer member, the stop portions having complementary bearing surfaces permitting relative rocking movements of the interfitting members when said stop portions are in contact.

5. A flexible coupling of the character described comprising interfitting members, a flexible packing carried by the inner member having an extensive free portion adapted to contact with the outer member to create a sealing engagement while permitting longitudinal and lateral movements of the members, and a stop on the inner member adapted to engage a cooperating stop on the outer member to limit the inward movement of the inner member with reference to the outer member, in combination with another stop portion on the inner member cooperating with said stop portion on the outer member for limiting the outward movement of the inner member with reference to the outer member, the stop portions having complementary bearing surfaces permitting relative rocking movements of the interfitting members when said stop portions are in contact.

6. A flexible coupling of the character described comprising interfitting members, a packing member on one of said members having an extensive free portion adapted to engage the other of said members to maintain sealing engagement while permitting relative longitudinal and lateral movements of said members, and stop portions for limiting the inward and outward movements of said members with reference to each other, and a contact portion carried by one of the members and spaced therefrom to permit the free portion of the packing member to occupy the space therebetween, substantially as and for the purpose described.

7. A flexible coupling of the character described comprising interfitting members, a flexible packing carried by the inner member having an extensive free portion adapted to contact with the outer member to create a sealing engagement while permit-

ting longitudinal and lateral movements of the members, and a stop on the inner member adapted to engage a cooperating stop on the outer member to limit the inward movement of the inner member with reference to the outer member, and a contact portion carried by one of the members and spaced therefrom to permit the free portion of the packing member to occupy the space therebetween, substantially as and for the purpose described.

8. A flexible coupling of the character described comprising interfitting members, a flexible packing carried by the inner member having an extensive free portion adapted to contact with the outer member to create a sealing engagement while permitting longitudinal and lateral movements of the members, and a stop on the inner member adapted to engage a cooperating stop on the outer member to limit the inward movement of the inner member with reference to the outer member, in combination with another stop portion on the inner member cooperating with said stop portion on the outer member for limiting the outward movement of the inner member with reference to the outer member, and a contact portion carried by one of the members and spaced therefrom to permit the free portion of the packing member to occupy the space therebetween, substantially as and for the purpose described.

9. A flexible coupling of the character described comprising interfitting members, a flexible packing carried by the inner member having an extensive free portion adapted to contact with the outer member to create a sealing engagement while permitting longitudinal and lateral movements of the members, and a stop on the inner member adapted to engage a cooperating stop on the outer member to limit the inward movement of the inner member with reference to the outer member, the stop portions having complementary bearing surfaces permitting relative rocking movements of the interfitting members when said stop portions are in contact, and a contact portion carried by one of the members and spaced therefrom to permit the free portion of the packing member to occupy the space therebetween, substantially as and for the purpose described.

10. A flexible coupling of the character described comprising interfitting members, a flexible packing carried by the inner member having an extensive free portion adapted to contact with the outer member to create a sealing engagement while permitting longitudinal and lateral movements of the members, and a stop on the inner member adapted to engage a cooperating stop on the outer member to limit the inward movement of the inner member with reference to the outer member, in combination with another stop portion on the inner member cooperating

ing with said stop portion on the outer member for limiting the outward movement of the inner member with reference to the outer member, the stop portions having
 5 complemental bearing surfaces permitting relative rocking movements of the interfitting members when said stop portions are in contact, and a contact portion carried by one of the members and spaced therefrom
 10 to permit the free portion of the packing member to occupy the space therebetween, substantially as and for the purpose described.

11. A coupling comprising interfitting
 15 members, one having oppositely disposed contact surfaces and the other carrying a sealing member adapted to engage one of said contact surfaces under pressure and the other under suction.

12. A coupling comprising interfitting
 20 members, one having longitudinally disposed contact surfaces and the other carrying a flexible packing member having an extended longitudinally disposed free portion adapted
 25 to create sealing engagement with one of said contact surfaces under pressure, and with the other of said contact surfaces under suction.

13. A coupling comprising interfitting
 30 members, the outer member being provided with an annular contact device spaced from the interior thereof to afford oppositely disposed contact surfaces, and the inner member carrying a packing having a free portion
 35 introduced between said contact surfaces and adapted to create a sealing engagement therewith, the one under pressure and the other under suction.

14. A coupling comprising interfitting
 40 members, one having oppositely disposed contact surfaces and the other carrying a sealing member adapted to engage one of said contact surfaces under pressure and the other under suction, and means permitting
 45 relative longitudinal movement of the interfitting members, while constantly maintaining the sealing means in operative relation to its cooperating contact surfaces.

15. A coupling comprising interfitting
 50 members, one having longitudinally disposed contact surfaces and the other carrying a flexible packing member having an extended longitudinally disposed free portion adapted
 55 to create sealing engagement with one of said contact surfaces under pressure, and with the other of said contact surfaces under suction, and means permitting relative longitudinal movement of the interfitting members, while constantly maintaining the seal-
 60 ing means in operative relation to its cooperating contact surfaces.

16. A coupling comprising interfitting
 members, the outer member being provided with an annular contact device spaced from
 65 the interior thereof to afford oppositely dis-

posed contact surfaces, and the inner member carrying a packing having a free portion introduced between said contact surfaces and adapted to create a sealing engagement therewith, the one under pressure
 70 and the other under suction, and means permitting relative longitudinal movement of the interfitting members, while constantly maintaining the sealing means in operative relation to its cooperating contact surfaces.

17. A coupling comprising interfitting
 75 members, one having oppositely disposed contact surfaces and the other carrying a sealing member adapted to engage one of said contact surfaces under pressure and the other under suction, and means permitting
 80 relative longitudinal and lateral movement of the interfitting members, while constantly maintaining the sealing means in operative relation to its cooperating contact surfaces.

18. A coupling comprising interfitting
 85 members, one having longitudinally disposed contact surfaces and the other carrying a flexible packing member having an extended longitudinally disposed free portion adapted
 90 to create sealing engagement with one of said contact surfaces under pressure, and with the other of said contact surfaces under suction, and means permitting relative longitudinal and lateral movement of the interfitting members, while constantly maintain-
 95 ing the sealing means in operative relation to its cooperating contact surfaces.

19. A coupling comprising interfitting
 100 members, the outer member being provided with an annular contact device spaced from the interior thereof to afford oppositely disposed contact surfaces, and the inner member carrying a packing having a free portion
 105 introduced between said contact surfaces and adapted to create a sealing engagement therewith, the one under pressure and the other under suction, and means permitting relative longitudinal and lateral movement of the interfitting members, while constantly maintaining the sealing means in operative relation to its cooperating contact surfaces.

20. A flexible coupling of the character described comprising interfitting members
 115 having cooperating bearing surfaces to constitute a ball joint, and said members being formed to permit telescopic movement of said members, in combination with a packing member for sealing the space between
 120 the coupling members irrespective of the position of said members telescopically or on the ball joint, said packing member being carried by one of the coupling members and having a part freely related to the other
 125 coupling member adapted to be sealed by pressure within the coupling.

21. A flexible coupling of the character described comprising interfitting members
 130 having cooperating bearing surfaces to con-

stitute a ball joint, and said members being formed to permit telescopic movement of said members, in combination with a packing member for sealing the space between the coupling members irrespective of the position of said members telescopically or on the ball joint, said packing member being carried by one of the coupling members and having a part freely related to the other coupling member adapted to be sealed by pressure within the coupling, and a part on said other member for creating a similar seal by suction on the interior of the coupling.

22. A pipe coupling having interfitting members, and packing instrumentalities interposed therebetween adapted under pressure within the coupling to create a sealing engagement, and also under suction within the coupling to create a similar sealing engagement, substantially as described.

23. A flexible pipe coupling comprising sealed interfitting members arranged for a relatively free lateral play with reference to each other and a longitudinal play one over the other without breaking the sealed relation thereof, in combination with coating surfaces adapted to constitute a ball joint in one position of the parts, substantially as described.

24. A flexible pipe coupling comprising interfitting members arranged for a relatively free lateral play with reference to each other and a longitudinal play one over the other, in combination with coating surfaces adapted to constitute separate ball joints, respectively, acting in opposite positions of the parts.

25. A flexible pipe coupling comprising interfitting members arranged for a relatively free lateral play with reference to each other and a longitudinal play one over the other, in combination with coating surfaces adapted to constitute a ball joint in one position of the parts, in combination with packing means for sealing the joint notwithstanding the varying positions of the members.

26. A flexible pipe coupling comprising interfitting members arranged for a relatively free lateral play with reference to each other and a longitudinal play one over the other, in combination with coating surfaces adapted to constitute separate ball joints, respectively, acting in opposite positions of the parts, in combination with packing means for sealing the joint notwithstanding the varying positions of the members.

27. A flexible pipe coupling comprising interfitting members arranged for a relatively free lateral play with reference to each other and a longitudinal play one over the other, in combination with coating surfaces adapted to constitute a ball joint in one position of the parts, in combination with packing means for sealing the joint notwithstanding the varying positions of the members, said packing means having relatively free portions and means cooperating therewith for forcing said free portions into sealing engagement under pressure and suction within the coupling.

28. A flexible pipe coupling comprising interfitting members arranged for a relatively free lateral play with reference to each other and a longitudinal play one over the other, in combination with coating surfaces adapted to constitute separate ball joints, respectively, acting in opposite positions of the parts, in combination with packing means for sealing the joint notwithstanding the varying positions of the members, said packing means having relatively free portions, and means cooperating therewith for forcing said free portions into sealing engagement under pressure and suction within the coupling.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

EDWARD FRANCIS BERRY.

Witnesses:

MARY BERRY,
FRED SOHE.

DEFENDANTS' EXHIBIT No. 37

[Endorsed]: U. S. District Court, District of
Oregon. Filed Aug. 26, 1942. G. H. Marsh, Clerk.

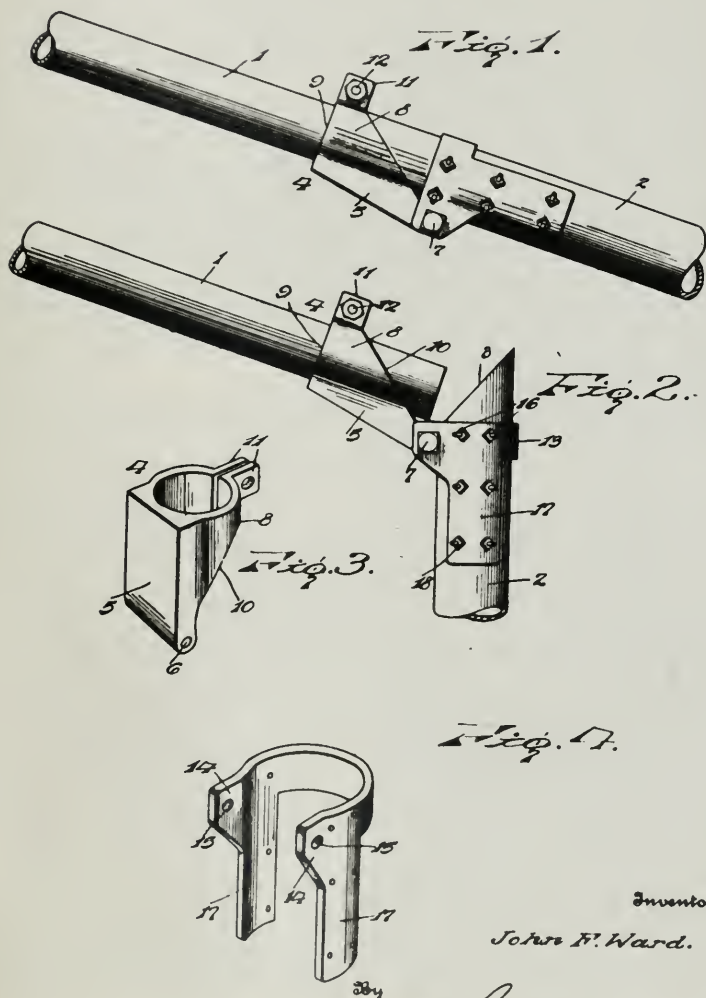
Mar. 13, 1923.

1,448,646

J. F. WARD

HINGE FOR SAND SPOUTS

Filed Nov. 10, 1921



Inventor

John F. Ward.

Lawyer, Attorney

Patented Mar. 13, 1923.

1,448,646

UNITED STATES PATENT OFFICE.

JOHN FISK WARD, OF DUNSMUIR, CALIFORNIA.

HINGE FOR SAND SPOUTS.

Application filed November 10, 1921. Serial No. 514,320.

To all whom it may concern:

Be it known that I, JOHN FISK WARD, a citizen of the United States, residing at Dunsmuir, in the county of Siskiyou and State of California, have invented certain new and useful Improvements in Hinges for Sand Spouts, of which the following is a specification.

This invention relates to spouts for feeding sand to the sand boxes of locomotives and has special reference to the hinge connecting the parts of the spout whereby the delivery end of the spout may be permitted to swing out of the way when the spout is not in use. The invention seeks to provide a construction of simple and inexpensive form which may be readily applied to the spout and will firmly connect the parts thereof in either the closed or the open position. The invention is illustrated in the accompanying drawings and will be hereinafter fully set forth.

In the drawings—

Figure 1 is a side elevation of a portion of a sand spout having my improved hinge applied thereto;

Fig. 2 is a similar view but showing the spout open or in inoperative position;

Figs. 3 and 4 are detail perspective views of the members of the hinge.

The spout consists of an upper tubular member 1 which is connected with the discharge opening of the sand hopper or bin in any convenient manner, and a lower tubular member 2 which may be of any desired length and is adapted to be placed upon or over the sand box or dome upon the locomotive so that sand flowing through the aligned spout members will be delivered into the box or dome. The diameter of the lower member 2 of the spout is somewhat greater than the diameter of the upper member 1 so that the meeting end of the lower member or section may fit over the meeting end of the upper member, the end of the lower member being cut obliquely relative to the longitudinal axis of the spout, as shown at 3. The upper hinge member 4 comprises a base block or body 5 through one end of which is formed an opening 6 to receive the hinge or pivot bolt 7. Disposed longitudinally of the base block 5 at the side edges thereof are the arcuate walls 8 which are adapted to fit closely around the upper spout section

1, as shown clearly in Figs. 1 and 2, and the said walls have one end disposed at a right angle to their axis, as shown at 9, while the opposite ends 10 are arranged obliquely and extend from the opening 6 toward the opposite end of the side walls and away from the base block 5, terminating in peripheral lugs or ears 11 through which a clamping bolt 12 is inserted to secure the side walls firmly around and against the spout section. The lower hinge member consists of a stirrup or collar 13 which is adapted to fit around the lower spout section 2 and is provided with terminal ears 14 which are adapted to embrace the end of the base block 5 provided with the opening or passage 6, openings 15 being provided through the said ears 14 to receive the pivot or hinge bolt 7, as will be readily understood. Fastening bolts or rivets 16 are inserted through the collar or stirrup 13 and the wall of the spout section 2 and the said stirrup is provided with extensions 17 which are adapted to extend longitudinally of the spout section and be rigidly secured thereto by rivets 18, the said extensions being provided with concave inner faces to fit closely to the spout section.

When the spout is in use, the two sections 1 and 2 will be axially aligned and the end 3 of the section 2 will rest upon the inclined edges 10 of the upper hinge member, encircling the end of the upper spout section so that a continuous passage for the sand will be provided and the joint between the sections will be closed so that leakage of sand cannot occur. When the spout is not in use, the lower spout section is swung downwardly, as shown in Fig. 2, about the pivot bolt 7 so that it will be out of the way of passing trains and any slight excess of sand which may be contained in the spout will not be deposited on the track or roadbed but may be caught in a conveniently placed receptacle. It will be readily noted that I have provided an exceedingly simple hinge which may be readily applied to any sectional tubular conveyor and will firmly support the parts at their meeting ends. The base block 5 is solid and presents a firm support for the pivot bolt so that bending of the bolt will be prevented and the inclined co-operating edges of the upper hinge member and the lower spout section provide a

firm support for the lower spout section. Moreover, as the hinge members encircle the respective spout sections, they serve to reinforce said sections at their meeting ends so that distortion thereof is obviated.

Having thus described the invention, what is claimed as new is:

1. The combination of tubular sections adapted to be brought into axial alinement, one of said sections having its end provided with obliquely disposed edges and adapted to encircle the meeting end of the aligned section, and pivotally connected hinge members secured to the respective sections whereby to connect the same, the hinge member on the upper section having an inclined end to be engaged by and support the inclined end of the lower section.

2. The combination of tubular spout sections, a hinge member provided with arcuate side walls adapted to fit snugly around the upper section adjacent the end thereof, means for clamping said walls upon said section, a hinge member secured rigidly about the lower spout section and having projecting portions adapted to span the first-mentioned hinge member, a pivotal connection between said projections and the end of the first-mentioned hinge member, and means whereby the first-mentioned

hinge member may support the end of the lower spout section.

3. The combination of upper and lower spout sections, a hinge member comprising a base block having a transverse passage through one end, arcuate side walls rising from the side edges of said base block and adapted to fit snugly around the upper spout section, means for clamping said walls firmly about said spout section, the end edges of said walls presented to the end of the spout section being inclined upwardly and rearwardly from the end of the spout section, a hinge member comprising a stirrup fitting about and rigidly secured to the lower spout section and having portions projecting beyond the said section and spanning the adjacent end of the base block in the upper hinge member, and a pivot inserted through the said projections and the passage in the said base block whereby to connect the hinge members, the end of the lower spout section projecting beyond the said stirrup and being inclined whereby it may rest upon and be supported by the inclined end edges of the first-mentioned hinge member.

In testimony whereof I affix my signature.

JOHN FISK WARD. [L. S.]

DEFENDANTS' EXHIBIT No. 39

[Endorsed]: U. S. District Court, District of
Oregon. Filed Aug. 26, 1942. G. H. Marsh, Clerk.

L. W. SERRELL.

DEVICE FOR CONNECTING HOSE TO FAUCETS.

APPLICATION FILED MAY 29, 1915. RENEWED MAR. 28, 1918.

1,292,524.

Patented Jan. 28, 1919.

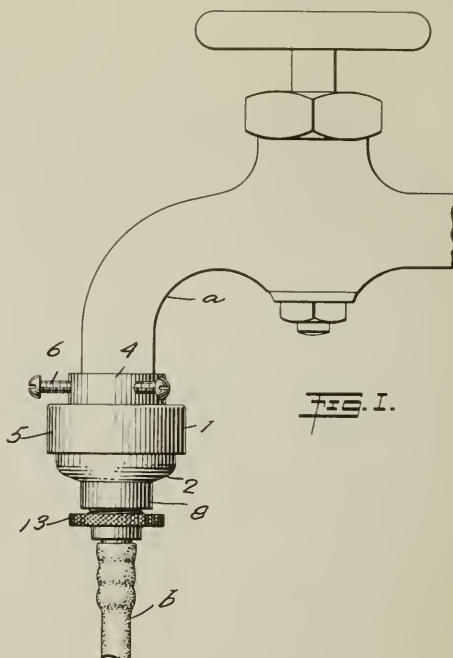
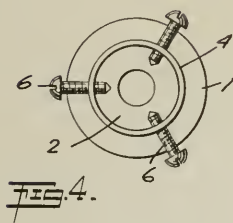


FIG. 2.

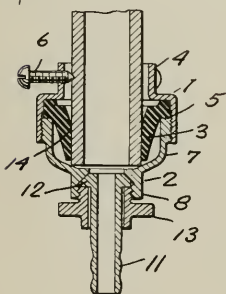
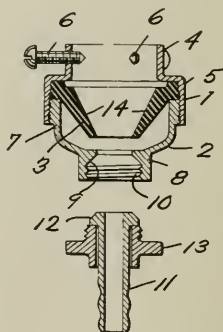


FIG. 3.



Witness
G. Robert Thomas

Inventor
L. W. Serrell
By his Attorney
J. P. Serrell

UNITED STATES PATENT OFFICE.

LEMUEL W. SERRELL, OF PLAINFIELD, NEW JERSEY.

DEVICE FOR CONNECTING HOSE TO FAUCETS.

1,292,524.

Specification of Letters Patent.

Patented Jan. 28, 1919.

Application filed May 29, 1915, Serial No. 31,102. Renewed March 28, 1918. Serial No. 225,350.

To all whom it may concern:

Be it known that I, LEMUEL W. SERRELL, a citizen of the United States, and a resident of Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Devices for Connecting Hose to Faucets, of which the following is a specification.

The invention is a device for connecting rubber tubing or hose with faucets, and the objects are to secure a simple and inexpensive construction, to provide a device the body of which can be applied to the faucet in a semi-permanent manner and by persons without mechanical skill, to permit ready and secure connection of the hose with and disconnection of the same from the body of the device, which remains at all times upon the faucet, to prevent all possibility of the device being forced off the faucet by the water pressure, and to guard against leakage. These ends are attained by the construction, the preferred embodiment of which will now be briefly described.

In the drawings:

Figure 1 is a side elevation of the device and tubing applied to a faucet;

Fig. 2 is a longitudinal section thereof;

Fig. 3 is a longitudinal section through the device, showing the nipple separate from the body; and

Fig. 4 is a top plan view.

The body of the device comprises two members 1 and 2, constituting a shell containing a washer 3.

The part 1 is adapted to be affixed to the faucet *a*, and is formed with a collar 4 and a coupling portion 5 of larger diameter than the collar. The internal diameter of the collar is such as to slip loosely over the average faucet nozzle, or the largest sizes ordinarily encountered, and is positively fixed thereto, without requiring a special formation of the faucet, by means of radial, pointed screws 6, which pass through threaded openings in the collar so as to be forced into the metal of the faucet nozzle.

The coupling portion 5 is internally threaded to receive the lower member 2 of the shell. The said member comprises an

upper portion 7 of relatively large diameter, which is externally threaded to engage the internal threads of the portion 5 of the member 1, and a reduced portion 8, which is formed with an internal ground seat 9 and screw-threads 10.

The remainder of the device comprises a corrugated nipple 11, adapted to receive the end of the flexible hose *b* and having a head 12 formed with a seating surface, which may be forced against the seat 9 by a hollow nut 13 engaging the threads 10 and bearing against the shoulder formed by the head.

The elastic washer 3 is clamped at its upper end between the portions 1 and 2 of the body or shell, and has downwardly converging walls 14 to clasp the faucet nozzle. The lower end of the washer is free and is materially smaller than the nozzle of the faucet, so that it must be stretched in order to pass over the latter. Preferably the washer is of substantially hollow truncated conical form, as shown, with its walls tapering in thickness toward the lower end. It will be observed that the device is so constituted that in use the pressure of the water which enters the shell presses the washer against the faucet, thereby assisting the elasticity of the material in preserving a leak-tight joint.

The body of the device when affixed to the faucet by the screws 6 is designed to be left in place, its construction and appearance being such that it is not objectionable as a part of the faucet. The nipple 11 is intended to be left in the end of the hose, between which and the head 12 the nut 13 is confined against loss. The hose is therefore attached and detached simply by screwing and unscrewing the nut.

What I claim as new is:

1. Device for connecting hose to faucets of varying sizes, comprising a sectional shell having radial screws for permanently securing it to a faucet, and an elastic washer having a peripheral portion clamped between the sections of the shell and a downwardly and inwardly tapering neck to receive and clasp the faucet, the lower portion of said shell being adapted for the recep-

tion of a quick detachable nipple carrying the hose.

2. Device for connecting hose to faucets of varying sizes, comprising a sectional shell
5 having radial screws for permanently securing it to a faucet, an elastic washer having a peripheral portion clamped between

the sections of the shell and a downwardly and inwardly tapering neck to receive and clasp the faucet, a nipple to receive the hose, 10 and a screw collar for detachably coupling the nipple and shell.

LEMUEL W. SERRELL.

DEFENDANTS' EXHIBIT No. 40

[Endorsed]: U. S. District Court, District of
Oregon. Filed Aug. 26, 1942. G. H. Marsh, Clerk.

No. 811,812.

PATENTED FEB. 6, 1906.

E. V. ANDERSON.
STAND PIPE FOR RAILWAYS.
APPLICATION FILED JAN. 16, 1904.

3 SHEETS—SHEET 3

FIG. 9.

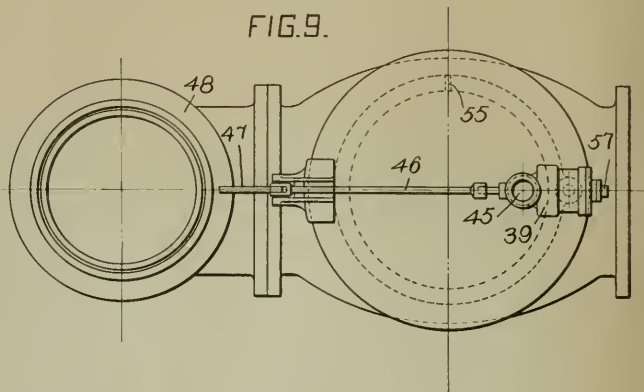
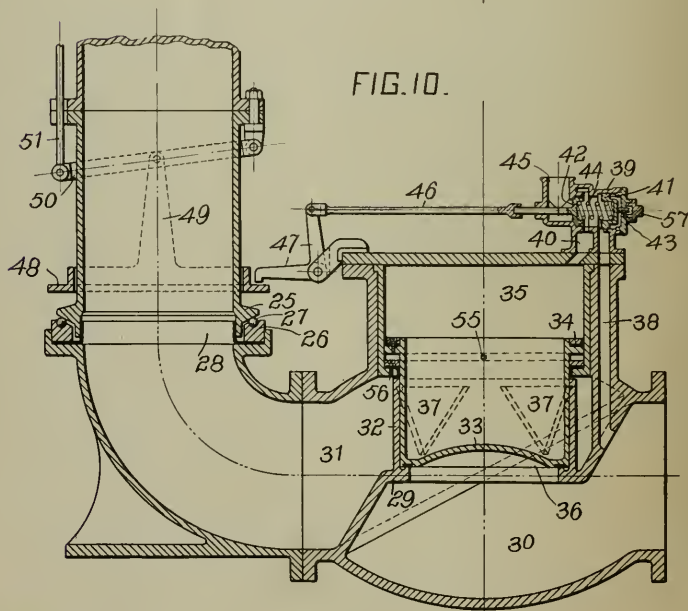


FIG. 10.



WITNESSES

Dred H. Kirchner.
Herbert Bradley.

INVENTOR

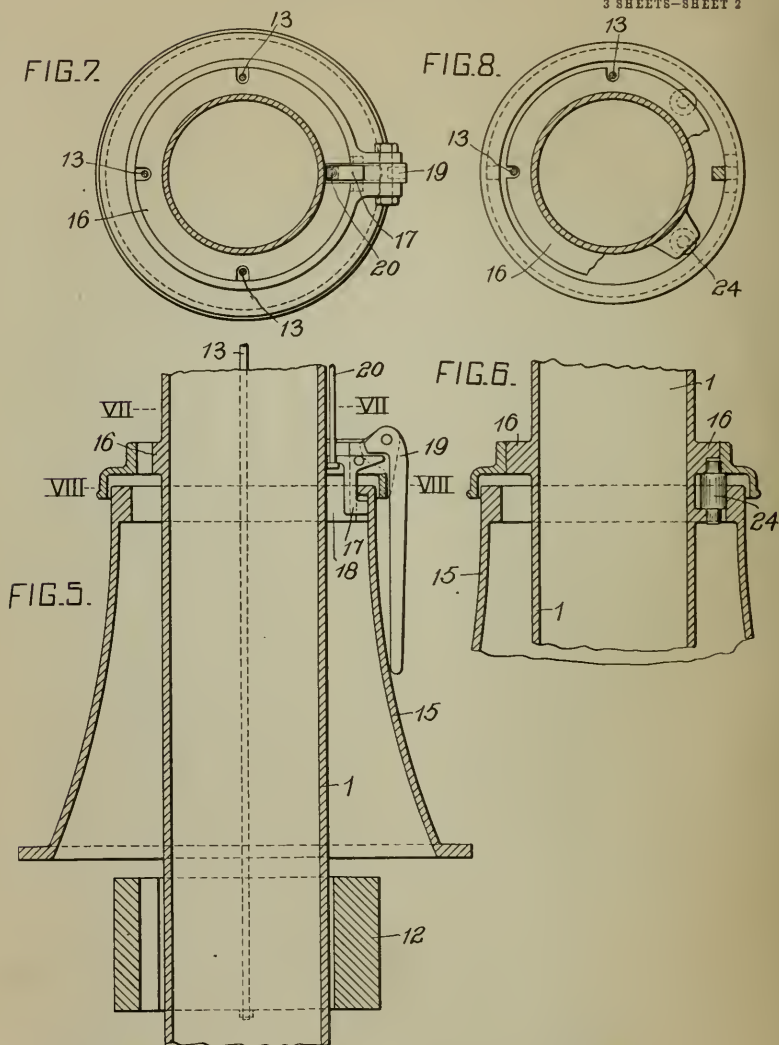
Edward V. Anderson
by Christy & Christy
ATTYS.

No. 811,812.

PATENTED FEB. 6, 1906

E. V. ANDERSON.
STAND PIPE FOR RAILWAYS.
APPLICATION FILED JAN. 16, 1904.

3 SHEETS—SHEET 2



WITNESSES

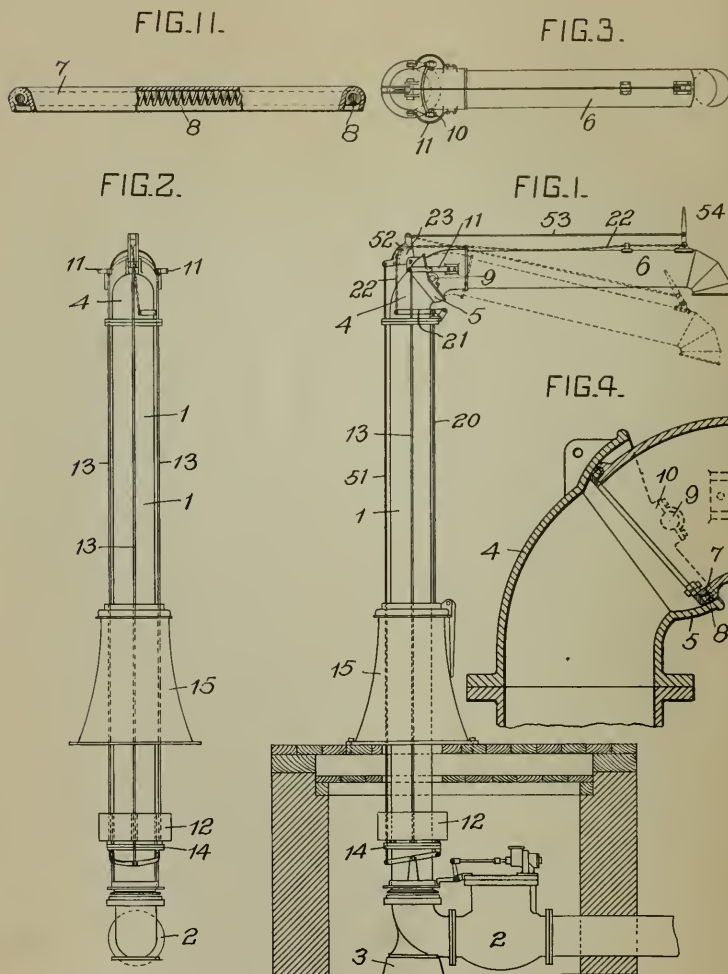
Fred Kirchner.
Herbert Bradley.

INVENTOR

Edward V. Anderson
by Christy & Christy
ATTYS.

E. V. ANDERSON.
STAND PIPE FOR RAILWAYS.
APPLICATION FILED JAN. 16, 1904.

3 SHEETS—SHEET 1



WITNESSES

Fred A. Hirschner.

Herbert Bradley.

INVENTOR

Edward V. Anderson
by Christy & Christy
ATTYS.

UNITED STATES PATENT OFFICE.

EDWARD V. ANDERSON, OF PITTSBURG, PENNSYLVANIA.

STAND-PIPE FOR RAILWAYS.

No. 811,812.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed January 16, 1904. Serial No. 189,342.

To all whom it may concern:

Be it known that I, EDWARD V. ANDERSON; a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Stand-Pipes for Railways, of which improvement the following is a specification.

The invention described herein relates to certain improvements in valve mechanism controlling the flow of water to stand-pipes, and has for its object a construction whereby the opening and closing of the valve is effected by the pressure of the water-supply.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of a stand-pipe embodying my improvements. Fig. 2 is an end elevation of the same. Fig. 3 is a plan view. Fig. 4 is a sectional detail view showing the joint between the vertical portion and the horizontal arm. Fig. 5 is a sectional view, on an enlarged scale, of a portion of the stand-pipe. Fig. 6 is a view similar to Fig. 5 on a different plane. Figs. 7 and 8 are sectional plan views on planes indicated, respectively, by lines VII VII and VIII VIII, Fig. 5. Fig. 9 is a plan view of the lower end or valve portion of the stand-pipe. Fig. 10 is a sectional elevation of the same, and Fig. 11 is a detail view of the packing between the vertical portion and the horizontal arm.

As is customary, the vertical portion 1 of the stand-pipe is secured at its lower end by an elbow to the valve-casing 2 and is supported by a suitable foundation-block 3. To the upper end of the vertical pipe 1 is secured an elbow 4 by a flange connection, said elbow being provided with a bell-shaped portion 5, having its interior surface spherical and preferably finished. The inner end of the horizontal portion projects within the spherical bell 5 and is suitably shaped, so as to be capable of motion therein. In order to form a tight joint between the end of the arm 6 and the bell, any suitable packing may be used, but preferably a cup-shaped packing 7, inserted within a suitable seat in the end of the arm and having its outer wall expanded or held in tight contact with the surface of the bell by a coil-spring 8. The arm 6 and the bell are held together by a pivotal connection, preferably formed by a trunnion 9 on the arm fitting within bearings 10 on the bell. It will be observed that the inner surface of the semispherical bell 5 coincides with

an arc of a circle, the center of which is at the intersection of the axes of the trunnions 9 and the horizontal arm 6. By this construction no strain whatsoever is brought upon the packing between the arm and the bell, the weight of the arm being carried by the bearings 10, while the arm is free to be shifted vertically, as desired. In order to counterbalance the arm, lugs 11 are secured thereto and extend to the rear of the trunnions and have a weight 12 connected thereto by rods 13, which extend down alongside the pipe 1 and are connected at the lower ends to a weight 13. This weight by preference will rest upon a suitable stop or support, as a flange-coupling 14, when the arm 6 is in horizontal or normal position.

The pipe 1 is held in vertical position by a stand or frame 15, secured to the platform, as shown, and the pipe is provided with a flange 16, having downwardly-turned lips extending a short distance below the upper end of the stand. To the flange 16 is pivotally connected a dog 17, so hung or supported that in normal position its lower end will swing out to engage lugs 18 on the inner wall of the stand. This dog can be shifted so as to pass out of engagement with the lugs by means of a lever 19, which when turned to a horizontal position will bear upon a portion of the dog and swing its lower end inwardly, thereby unlocking the pipe 1 from the stand 15. This handle when thus turned to horizontal position will also serve as a means for rotating the pipe. In order to provide for the shifting of the dog from the tender of the locomotive, a rod 20 is connected to a lateral extension of the dog and extends up alongside of the pipe to a lever 21. The free end of this lever is connected to a chain 22, which passing over a segmental sheave-block 23 extends to the front end of the arm 6, where it can be caught and pulled by the operator. It will be readily understood that the arm 6 will always tend to cause the vertical portion of the pipe to swing from vertical position and to bear more heavily against one part of the stand than another. In order to avoid frictional resistance due to such increased bearing, friction-rollers 24 are mounted on the stand-pipe on the same side as the arm 6 and bear against the inner wall of the upper end of the stand. To facilitate the rotation of the vertical pipe, its lower end has an anti-friction-bearing upon the elbow connecting it with the valve-case 2, the bearing being

formed by a rib 25 in the pipe or vertical portion, said rib having its under or bearing surface curved transversely and a ring 26 on the elbow, balls 27 being interposed between said parts. This construction forms a ball-and-socket connection between the vertical pipe and its support, permitting the latter to move from true vertical position without injury to the joint between said parts. In order to prevent the escape of water through this joint, a packing-ring 28 is secured to the elbow, and its free portion extends upwardly into the vertical pipe.

The valve-casing 2 is divided by a diaphragm 29 into two parts or chambers 30 and 31, the former being connected to the supply-pipe and the latter to the vertical pipe. On this diaphragm 29 is formed an open-ended cylinder 32 for the reception of the lower end of the piston-valve 33. This piston-valve is preferably made hollow and is provided at its upper end with a flange 34, said flange operating within a cylinder 35, forming part of the valve-casing. This flange is provided with a suitable packing to prevent the flow of water from cylinder 35 into the stand-pipe. When in its lower position, the end of the valve-piston bears against a rim 36 at the lower end of the cylinder 32, forming a tight joint therewith, as against escape of fluid.

When the piston is raised, it uncovers V-shaped ports 37, formed through the wall of the cylinder 32 on the diaphragm. As the apices of these ports are down, there will be a gradual increase in flow of water from one side of the diaphragm to the other and also a gradual cutting-off when the cylinder is forced down to its seat 36. A port 38 extends from the inlet-chamber 30 of the valve up to a valve-chamber 39, which is also connected by port 40 with the upper end of the cylinder 35. Within this chamber 39 is arranged an adjustable valve 41 and a shiftable valve 42. The adjustable valve 41 is arranged to control the passage 38 and can be adjusted back and forth by means of a screw 43 and a spring 44, interposed between valves 41 and 42. Valve 42 controls the flow of water from the valve-chamber to the cylinder

35. By shifting the valve 42 to the right the port 40 will be placed in communication with an outlet-exhaust port 45, and the upper side of the piston-valve 33 will be relieved from pressure, so that the pressure of the water on the under side of such valve will force it up and allow water to flow through the V-shaped ports 37 into the stand-pipe. When the valve 42 is shifted to the left, the escape of water from the cylinder is stopped and the flow of water from the chamber 30 or the supply side of the valve mechanism to the upper side of the piston-valve 33 will be permitted, thereby causing the piston-valve to move downwardly, as the area at the upper end of the piston-valve is greater than that at the

lower end. By adjusting the valve 41 by the screw 43, so as to change the capacity of the port from the supply side, the rate of closure of the piston-valve can be regulated. The valve 42 is provided with a stem 46, connected to one arm of a bell-crank lever 47, whose opposite arm projects into the path of movement of a ring 48, surrounding the vertical pipe. This ring is connected by an arm 49 to a lever 50 and the latter by a rod 51, bell-crank lever 52, and rod 53 to an operating-handle 54 on the horizontal arm 6 of the stand-pipe.

It will be observed that the cylinders 32 and 35 are practically one cylinder, having one portion of greater diameter than the other, and that the piston-valve 33 is differential in construction. A cushion for the closing movement is provided by forming a constantly-open port 55 adjacent to the shoulder 56 between the cylinders 32 and 35. The escape of water from this port will show that either the packing on the flange 34 is defective or that the piston-valve 33 does not seat properly on the rim 36. The adjusting-screw 43, which extends out from the valve-chamber 39 is preferably protected by a screw-cap 57.

I claim herein as my invention—

1. In a valve mechanism the combination with a casing provided with a valve-seat in its interior, of a hollow cylinder within said casing surrounding said valve-seat at one end and open at its opposite end and having openings at its side for the flow of liquid when the valve is open, a cylindrical valve substantially fitting the interior of the cylinder and covering the outlet-ports when in closed position and having one end closed and adapted to seat against said valve-seat, and means for operating said valve.

2. In a valve mechanism the combination with a casing provided with a valve-seat in its interior, of a hollow cylinder within said casing surrounding said valve-seat at one end and open at its opposite end and having openings at its side for the flow of liquid when the valve is open, a cylindrical valve substantially fitting the interior of the cylinder and covering the outlet-ports when in closed position and having one end closed and adapted to seat against said valve-seat, an operating-cylinder in axial alinement with the first-named cylinder, a piston therein connected to said valve and means for admitting fluid under pressure to the operating-cylinder on the side of the piston opposite said valve and for permitting the escape of said fluid.

3. In a valve mechanism the combination with a casing provided with an internal valve seat and embodying in its construction two internal hollow cylinders differing in diameter and having a common axis, one end of the smaller cylinder surrounding the valve-seat and its opposite end communicating with the

larger cylinder, the smaller cylinder having
 outlet for the flow of liquid when the valve is
 open, a combined valve and piston having
 its valve portion when closed, substantially
 5 fitting the smaller cylinder throughout the
 length thereof and guided thereby and hav-
 ing the end opposite the piston portion con-
 structed to seat on the valve-seat, the piston
 portion fitting the larger cylinder a passage

connecting the larger cylinder with a source 10
 of supply and with a waste-passage and a
 valve for alternately closing said passages.

In testimony whereof I have hereunto set
 my hand.

EDWARD V. ANDERSON.

Witnesses:

F. E. GAITHER,
 DARWIN S. WOLCOTT.

In the United States Circuit Court of Appeals
For the Ninth Circuit

No. 10334

SAM SCHNITZER, HARRY J. WOLF, ROSE
SCHNITZER and JENNIE WOLF, individ-
ually, and as a co-partnership doing business
under the name and style of ALASKA
JUNK CO.,

Appellants,

vs.

CALIFORNIA CORRUGATED CULVERT CO.,
a corporation, and LEO T. CROWLEY, Alien
Property Custodian of the United States,

Appellees.

STIPULATION AND ORDER REGARDING
REPRODUCTION OF EXHIBITS

It Is Hereby Stipulated and Agreed by and be-
tween the parties hereto that the Court may, if it
approves, enter an order herein in the subjoined
form.

Dated this 29th day of March, 1943.

J. S. MIDDLETON

Attorney for Defendants-
Appellants

WM. S. GRAHAM

Attorney for Plaintiff-Appel-
lee, California Corrugated
Culvert Co.

JAMES H. HAZLETT

Of Attorneys for Plaintiff-
Appellee, Leo T. Crowley,
Alien Property Custodian
of the United States

ORDER

It Appearing that the Transcript of Record on Appeal from the United States District Court for Oregon has been docketed in this Court in the above mentioned cause, and includes the complete transcript of testimony and all of the original exhibits introduced in evidence in the trial of this cause, and it appearing that at the present time printed copies of certain patents are not obtainable promptly from the Patent Office; and that the reproduction by printing of certain documentary exhibits in the printed Record on Appeal would be difficult and costly;

It Is Hereby Ordered that the foregoing stipulation is approved, and that the Defendants-Appellants, Sam Schnitzer, et al, may for the purposes of preparing book of exhibits for the printed Record on Appeal, furnish the Clerk of the Court with

eighteen copies of the hereinafter enumerated exhibits of patents introduced in evidence in the trial of this cause, to-wit: Exhibits 11, 22, 25, 27, 29, 32, 36, 37, 39 and 40 whereof the copies of Exhibits 29, 32 and 37 may be photostatic copies for completion of a total of at least eighteen copies of said book of exhibits; and this shall be deemed a sufficient compliance with the rules of this Court respecting printed reproduction of exhibits in said Record on Appeal.

It Is Further Ordered that the reproduction of other documentary exhibits by printing may be dispensed with; and

It Is Further Ordered that original exhibits, both physical and documentary, transmitted to and on file in this Court and not reproduced in the printed Record on Appeal may, nevertheless, be referred to by counsel for all parties herein in briefs and in argument, and such original exhibits shall be considered by this Court in their original form on the hearing and determination of this appeal.

Dated this 29th day of March, 1943.

FRANCIS K. GARRECHT

United States Circuit Judge

[Endorsed]: Filed Mar. 27, 1943. Paul P. O'Brien,
Clerk.